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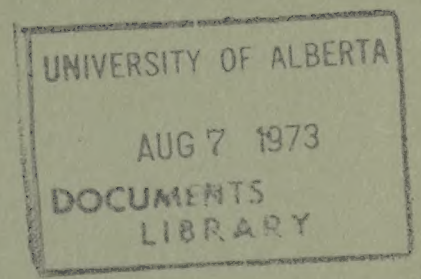
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Colonies  
Canada 23



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1860

*Colonies*  
*Canada*

23



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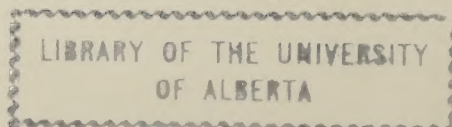
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BRITISH COLUMBIA.

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Presented to both Houses of Parliament by Command of Her Majesty.  
1860.

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LONDON:

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.  
FOR HER MAJESTY'S STATIONERY OFFICE.

1860.







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RELATIVE TO

## THE AFFAIRS OF BRITISH COLUMBIA.

### PART III.

#### Despatches from Governor Douglas.

##### No. 1.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart, M.P.

BRITISH  
COLUMBIA.  
No. 1.

(No. 127.)

Victoria, Vancouver's Island, April 8, 1859.

(Received May 28, 1859.)

(Answered No. 22, Sept. 19, 1859, page 101.)

SIR,

I HAVE the honour of transmitting herewith for your information, an Abstract of the Revenue and Expenditure of the Colony of British Columbia, taken from the accounts of that Colony, which have been made up in a clear and intelligible form, to the 23rd day of February 1859.

2. Those books comprise all our financial transactions up to that period. It will be observed, that the income derived from the various sources therein shown, amounts to the sum of 22,924*l.* 1*s.* 5*d.*, and the expenditure for the same period to 25,059*l.* 6*s.* 4*d.*, exceeding the income by the sum of 2,135*l.* 4*s.* 11*d.*

3. To meet that deficiency there is on the other hand the sum of 10,284*l.* 19*s.* 9*d.* remaining, partly in cash at Langley, and partly due on the sale of town lots, at the same place; a small sum invested in Government buildings, and in aid of the Harrison's river road, which leaves a balance on that date exceeding 8,000*l.* in favour of the Colony.

Some petty balances may remain outstanding at Fort Hope, Yale, and Lytton, which were not received in time to be incorporated with those accounts; but such sums will be paid out of the current revenues of those districts.

At the towns of Lytton, Hope, and Yale, which were surveyed and laid out into building lots last autumn, no sales have yet been made, but instructions have been conveyed to the Commissioner of Lands and Works, to bring those lands into the market with as little delay as may be convenient.

4. The construction of the Harrison or Lillooet road has been the great source of outlay this season, that work having cost the Colony nearly 14,000*l.*

5. Large as the outlay may appear, it very inadequately represents the value of this important public work, which has removed the difficulty of access, and the great impediment to the development of the mineral regions of British Columbia.

6. The outlay for all other objects connected with the Colony, including 2,300*l.* applied in defraying the extra pay allowed, for one quarter, to the officers and ships companies of Her Majesty's ships "Satellite" and "Plumper" forms the moderate sum of 11,059*l.*

III.



BRITISH  
COLUMBIA.

7. The removal of the intended sea port town, from Langley to Queensborough, has caused a depression in the Public Revenue, arising from sales of town lands, which ceased entirely at the former place, with the first announcement of the proposed change in the seat of Government. Colonel Moody reports that it will be several weeks before the survey of the site of Queensborough is completed, and that no country land will be surveyed for sale before the first week in May.

8. Those sources of revenue are therefore for the present altogether unproductive, though the current expenses of the Colony are somewhat increased by the addition of civil assistants to expedite the survey of country lands, and to increase the means and efficiency of the Department of Lands and Works, and to render it productive of revenue.

9. The Colonial Treasurer advocates stamp duties as a source of revenue "in combination with a self paying registration of assurances affecting real property," and I have desired him to prepare a report on the best means of carrying those views into effect. If such duties be confined even to conveyances of real estate, they will be productive of considerable revenue.

10. The want of an Assay Office in the Colony is felt as a public inconvenience, and is no doubt highly detrimental to the commercial interests of the country. There being at present no means here of ascertaining the true commercial value of gold dust, the merchant to save himself from loss will only purchase it at a low rate, which the miner will not accept, or the gold dust is retained in the merchant's hands in deposit, until samples of it are sent and tested at San Francisco. Hundred of miners worn out with the expense and delay so occasioned, fly in disgust with their gold to San Francisco.

11. An Assay Office established here, the evil would cease to operate, and the gold would remain in the country.

12. The establishment of an Assay Office would otherwise I believe prove of signal advantage to the public revenue, inasmuch as it would give facilities for levying an export duty on gold. That is now impossible, and will be, so long as the miner cannot get a fair price for his gold in this country, and in consequence keeps it in his own hands. If collected at all, in those circumstances the duty would have to be wrung from each individual miner, and they, to elude the payment, would cross the frontier and fly with their treasures into the United States.

13. The Assay Office would provide a remedy for the evil. Every man might, through its aid, learn from an official source the true value of any gold in his possession, and either spend or exchange it for coin in the country. This would throw the export of gold into the hands of large dealers, who, having no inducement to smuggle equal to the risk, would export through the lawful channel, paying the duty, which they in turn would take care to levy on the miner, by deducting it from the price paid.

14. An export duty might then be imposed with advantage, and be found easy and cheap of collection. The other features of the Australian system of taxation on miners might also be adopted and made applicable to the circumstances of British Columbia, in which case the licence fee on miners, so objectionable on account of the expense and affrays produced in its collection, would cease to be enforced.

15. I have only further to state in reference to the Abstract of British Columbia Accounts forwarded, that the Treasurer, Captain Gosset, has now the sole and entire arrangement of the Financial Department, over which I have hitherto had to maintain a rigid control.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart, M.P.  
&c.                      &c.                      &c.

(Signed) JAMES DOUGLAS.





No. 2.

No. 2.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Victoria, Vancouver's Island, April 11, 1859.

(Received May 28, 1859.)

(No. 129.)

(Answered No. 76, June 4, 1859, page 97.)

SIR,

\* Vide papers  
presented  
August 1859,  
page 77.

I HAVE duly received your Despatch of the 22nd January 1859, No. 7,\* conveying to me your approval of the construction of the route by Harrison's River, and acquainting me that you look to the payment of all expenses connected with it out of local, and not from Imperial, funds.

2. The gratifying expression of your approval in this matter is very acceptable to me, and I am happy to be able to state that we have paid the whole expenses of the road, amounting to 14,000*l.*, out of the local revenue. The undertaking has been a severe tax upon our small resources, but the work was indispensable for the development of the country, and it will in the end greatly benefit the revenue by the increase of the imports which it is the means of introducing into the interior.

I have, &amp;c.

The Right Hon. Sir. E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor

No. 3.

No. 3.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 135.)

Victoria, Vancouver's Island, April 11, 1859.

(Received May 28, 1859.)

(Answered No. 22, Sept. 19, 1859, page 101.)

SIR,

\* Page 1.

IN continuation of the remarks on the expediency of establishing an Assay Office in this Colony, which I was unable to continue in my Despatch No. 127\* of the 8th instant, in consequence of the reported arrival of the mail steamer from San Francisco, which remains here at each visit only a few hours.

2. I have further to remark that we have attempted to induce the owners (not Americans) of *private* Assay Offices in San Francisco to establish branches of their houses at Victoria, but without success. The objections made by them were to this effect:

That Her Majesty's Government would at no distant date probably establish a mint at Victoria, and their business would therefore then cease.

That being foreigners they could not expect the same privileges as are granted to English houses taking up the assaying business.

Their chief reason however was this, that they had already the whole assaying business of British Columbia in their hands, as nearly all the gold produce of the Colony is now carried to San Francisco, and they had therefore nothing to gain by extending their business to Victoria, or to compensate for the certain outlay of capital which the process would involve.

3. I do not know what steps can be taken by Her Majesty's Government to deliver the Colony from so great an evil as is the present drain of its resources towards San Francisco, and the loss and delay to which miners are exposed in selling gold here; but I clearly see the advantage of a direct trade between the Mother Country and British Columbia, and I am of opinion that the establishment of an Assay Office in Victoria would be an important step in advance.

4. Having an Assay Office here, the miner would only have to take his gold there, have it assayed, and receive value for it; or if he preferred it, have it run into bars at a very trifling expense, and then he could dispose of his bars, which would bear the fineness and weight upon them by mint mark, just as readily as he could of coin, or he could convert them into coin; in fact, bars would be currency.

5. An Assay Office must, however, be the property either of the Government, to give it the stamp of character unsuspected, or it must be owned by a private party possessed of capital, in high credit, good mercantile reputation for probity, and well known to the mining community. This last quality above all is requisite.

6. As no private person on the Pacific coast who could fulfil the chief conditions, which I consider indispensable to success, namely public confidence, is disposed to come here, the only prudent and efficient plan is to establish a Government Assay Office. It should be on a large scale, for there will be abundance of work.

7. The expense would be small, involving little more than the erection of a house, a fire-brick furnace, a few crucibles which could, no doubt, be made here, a good assayer, and a few assistants. The process is simple to a degree, and the whole expense of the plant of an Assay Office would not exceed 600/. Its operation, judging from the experience of the San Francisco private assayers, who have all become wealthy, would leave a profit. I therefore believe that a well managed Government Assay Office would, at least, pay its own expenses.

8. Its advantages to the Colony would be incalculable. Keeping the gold circulating in the country, the status it would give the place, the confidence it would inspire abroad, the benefits to the miners, the contentment it would diffuse amongst them, by the certainty and fairness and celerity of its operations, and its security, are amongst the advantages of such an establishment.

9. A mint would certainly be more efficient, but that is an expensive establishment, though if Her Majesty's Government were to set one up, I think the circumstances of the country would justify the outlay. It would also require time to complete and perfect its details, but the establishment of an Assay Office involves little delay, and a very moderate expense, therefore I beg to recommend the plan to the favourable consideration of Her Majesty's Government.

I have, &c.

(Signed) JAMES DOUGLAS,  
Governor.

The Right Hon. Sir E. B. Lytton, Bart, M.P.  
&c. &c. &c.

No. 4.

No. 4.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 136.)

Victoria, Vancouver's Island, April 12, 1859.

(Received May 28, 1859.)

(Answered No. 75, June 3, 1859, page 97.)

SIR,

SINCE the last report I had the honour to make on the state of the country, contained in my Despatch of the 25th of March, No. 123,\* I have received various communications from British Columbia, the substance of which I will proceed to impart for your information.

2. Judge Begbie is now on circuit in British Columbia, having successively opened court at Langley, Fort Hope, and Yale, and by last accounts was proceeding to "Lytton" with a similar object in view.

3. The docket did not contain many cases, and was soon disposed of. Two cases of shooting were tried at Langley, but the jury did not convict capitally in either of the cases.

4. The last reports from Mr. Commissioner Brew are dated from Port Yale, 2nd of April. That officer has not been successful in collecting the miners' licence fee. The following is an extract from his letter on that subject:—

"During the last week we collected over 150 dollars from miners about Fort Yale. Some men paid the tax most willingly, but from the majority of the miners it was extracted with difficulty and after great grumbling. I intend to make an excursion towards Fort Hope next week to settle some difficulties about ditches, and I shall avail myself of the opportunity to have the miners' tax collected from parties who on a former occasion refused to pay. Mr. Justice Smith, from Fort Hope, was at Fort Yale yesterday. He informs me that he hopes to be able to collect the tax from the greater number of miners about Fort Hope.

"On the 30th ult. I went in a canoe up the river some distance to visit the Bars and ascertain if any mining was going on. The snow was too deep on the ground to admit of sluicing, and, except at one place, where there was a hand machine for lifting water all the miners were idle."

\* Vide papers presented August 1859, page 70.



BRITISH  
COLUMBIA.

5. It may be observed in apology for Mr. Brew's want of success in collecting revenue, that the miners have not yet fairly got to work, but he will no doubt insist on a strict compliance with the established mining regulations as soon as the weather becomes genial and more favourable for mining pursuits.

6. The migration of miners to the upper districts of Fraser's River continues unabated. 300 boats, carrying on an average five white men each, had passed Fort Yale previously to the 24th of March, and a greater number of men are reported to have gone towards the same quarter by land, having packed their provisions either on mules or on men's backs to the various diggings, giving thus a collective number of about 3,000 men.

7. Favourable reports continue to arrive from Bridge River. It had just come to Mr. Brew's knowledge that two men had arrived at Fort Yale with 600 ounces of gold dust, which they had washed out during the winter at Boston Bar, 40 miles beyond Fort Yale.

8. A nugget, weighing 3 ounces less 2 pennyweights, was lately found at Bridge River, which I herewith forward for your inspection, on account of its being the largest piece of gold yet found in British Columbia.

9. I forward a copy of a communication from Mr. Assistant Commissioner Travaillet, dated "Lytton," 16th March. The country was perfectly quiet, and the Commissioner was engaged in erecting a small building to serve as Government House, at a cost of 2,100 dollars, 1,000 dollars of which he had already paid out of the proceeds of local revenue, and the balance he would be in funds to meet about the 1st of April.

10. The numbers of the "Victoria Gazette"\* herewith forwarded will give some additional intelligence, which may be interesting.

\* Nos. 38 to 44  
from March 29  
to April 12,  
1859.

The Right Hon. Sir E. B. Lytton, Bart.  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

Encl. in No. 4.

Enclosure in No. 4.

COPY of Letter from O. T. TRAVAILLOT, Esq., Assistant Commissioner, dated Lytton, British Columbia, March 16, 1859, to Governor DOUGLAS.

MONSEIGNEUR,

J'AI eu l'honneur de recevoir avant-hier au soir les ordres de votre Excellence, en date du 14 Janvier, ainsi que vos Proclamations du 8<sup>e</sup> et 14<sup>e</sup> Fevrier de cette année. Conformément à vos ordres du 10 Janvier et à sa requête j'ai adressé mes rapports directement à Monsieur Brew, et me prépare à lui transmettre pour la fin de ce mois un compte rendu général de finances de ce district.

Bien que vos ordres soient de correspondre directement avec le Chef Commissionaire, je pense néanmoins, Monseigneur, qu'il est de mon devoir de vous informer de la direction que prennent les affaires publiques, afin que votre Excellence puisse donner des ordres pour établir et maintenir partout le bon ordre.

Suivant toutes les apparences, le mouvement de l'émigration se fera dans les hauts de la Rivière Fraser; les mines du canot sont réputées très riches, et depuis deux semaines que les voyages ont commencé, une grande quantité de mineurs s'est portée sur ce point. La Rivière Salloet\* n'est pas gardée, et par cette voie doivent passer les approvisionnements de toute espèce. Le Trésor Public peut-être frustré d'un grand revenu en ne surveillant pas l'embouchure de cette rivière, qui va devenir la clef du Haut Fraser. Il serait donc désirable d'y établir au plus vite un poste, de même, un juge de paix pour "Fontaine."

Le ferry aux fourches de Thompson ne pourrai être completé que le 1<sup>re</sup> Mai, par suite du malheur survenu au batelier W. Clarke, qui s'est noyé le 9 de ce mois onze milles plus bas que Boston Bar. Celui de Salloet est établi à French Bar à mi-distance des deux rivières Salloet\* et Bridge. Un pont a été jeté sur cette dernière. J'ai eu l'honneur de vous adresser, par l'intermédiaire de Mr. Brew, une copie du contrat qui doit être sanctionné par votre Excellence.

Je fais bâtir, d'après les ordres de Monsieur le Colonel Moody, une maison\* qui passe pour la meilleure et la plus noble de toute la colonie; elle coutera \$2,100. J'en ai déjà payé \$1,000, et suis prêt à payer la balance lorsque la maison sera achevée, c'est-à-dire, fin Mars.

Je me suis adressé à Mr. Brew pour avoir des licences de mineurs, la saison s'ouvre et de celles que j'ai reçu de votre Excellence à Fort Langley il ne me reste que 150, qui ne dureront pas longtemps, vu que dans deux jours je serai en route pour collecter,

J'ai l'honneur, &c.  
(Signed) O. T. TRAVAILLOT, Assistant Commissioner.

\* Harrisons  
River.

\* Seaton River.

\* Government  
House.

No. 5.

BRITISH  
COLUMBIA.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

No. 5.

(No. 137.)

Victoria, Vancouver's Island, April 12, 1859.

(Received May 28, 1859.)

(Answered No. 3, June 30, 1859, page 97.)

SIR,

I REGRET to state that no small amount of injury has undoubtedly been caused to the colony of British Columbia by the owners of the steam boats which are now and have been for some time past running on Fraser's River. These individuals are citizens of the United States, and they oppress alike the miner and the merchant by their exorbitant charges for passage and freight.

2. The rate now levied for the transport of a ton of goods from this place to Fort Hope is 72 dollars, or more than 14*l.* sterling. The charge made last summer, when I possessed the power of regulating prices, was 25 dollars, or 5*l.* a ton from this place to Fort Yale, which is fifteen miles of difficult navigation beyond Fort Hope, and large profits were made at that rate. I fear the owners are now combining to perpetuate the evil by taking out British registers for their vessels, by means of transfers to British subjects, which there is every reason to believe are only nominal and fictitious, although, all the requirements of the law being complied with, it is difficult to establish legal proof of that fact.

3. In this part of the world competition is not allowed to produce its legitimate effects; it is the practice to buy up every rival line, or to pay them handsomely for allowing their ships to lie idle, and the public are charged a higher rate to cover the additional expense which their oppressions have incurred. The American Pacific Mail Steam Ship Company is a notable example of this method of proceeding, this company having hitherto bought off every line established to compete with it. I will instance another case. Last year a steamboat called the "Maria" was started on the Sacramento River in opposition to the boats of, I believe, the California Steam Navigation Company. She was bought off by that company. Her proprietor immediately brought her up to this place to run on Fraser's River, buying off another boat which he on arrival found on the river, and sending this second boat down to San Francisco to commence another opposition on the Sacramento River in order to be again bought off.

4. The Victoria Steam Navigation Company, a British company, who have one large river steamer employed between this port and Langley, are now engaged in building a smaller vessel for the higher navigation of Fraser's River. The directors of this company lately applied to me for the protection of Government against the machinations of these foreign speculators. I commented upon the extravagant rate of freight, and suggested a large reduction as the best means of meeting their competitors, whereupon the directors offered to provide vessels in sufficient numbers to perform the whole transport business on Fraser's River at the rate of 25 dollars, or 5*l.* sterling a ton, provided they were secured against these, in reality American owners of British registered vessels, in the exclusive privilege of navigating the river until the end of next September. Monopoly would in such a case be a public gain, but being illegal, I could not entertain the proposal, though I cannot but regret that, under such circumstances, I have no power by which I could protect the public interest.

5. The directors further assured me that they had been invited by the American owners to join in the combination for maintaining the high rates of freight; but as the directors declined making the statement in writing, no legal use could be made of it.

6. The Government legal authorities here are of opinion that we have no power to refuse the change of register from American to British, even for vessels employed in British inland waters.

7. I transmit a copy of two letters from the secretary of the before-mentioned company, and as the matter is one of much importance to the interests of the colony, as well as being a national question, I should feel obliged if it were submitted for the opinion of the law officers of the Crown, and that I may be informed whether I should be justified in withholding a British register from vessels becoming British under such circumstances as those described, which appear to me simply an evasion of the law.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart.  
&c.                      &c.                      &c.

(Signed) JAMES DOUGLAS,  
Governor.



BRITISH  
COLUMBIA.

Enclosure 1 in No. 5.

Encl. 1 in No. 5.

COPY of Letter from James N. Thain and Alexander Sinclair Murray, of the Victoria and British Columbia Steam Navigation Companies, dated Victoria, April 7, 1859, to Governor DOUGLAS.

SIR,

IN conformity with the desire expressed by you, at a recent interview held with you on the subject of the navigation of Fraser River, that we should considerably reduce the present scale of charges on freight to the different points on that river, we beg respectfully to make the following tender: That on condition of the exclusive privilege of the navigation of the inland waters being granted to us, as representing the only *bonâ fide* owned British vessels running on the Fraser River, we will carry the Government, the Hudson's Bay Company's, and all merchant freight at the rate of twenty-five dollars (\$25) per ton, from this to Fort Hope or Port Douglas, from the time the rising of the water will admit of our steamers reaching those points to the end of the month of September next.

We are induced to make this low tender (the present rate of freight from here to Fort Hope being \$72 per ton of 2,000lbs.) in order to protect owners of British steamers built in the colony from the prejudice they would suffer if any nominal transfers of foreign vessels be effected, such we are informed being at present contemplated.

We have, &amp;c.

(Signed) JAMES N. THAIN,  
Secretary, Victoria Steam Navigation Company.  
ALEXANDER S. MURRAY,  
for British Columbia Steam Navigation Company.

Encl. 2 in No. 5.

Enclosure 2 in No. 5.

COPY of a Letter from the Victoria Steam Navigation Company, and from the British Columbia Steam Navigation Company, to his Excellency Governor DOUGLAS, April 7, 1859.

SIR,

IN compliance with your Excellency's desire that we should state in writing the substance of our conversation with you this morning, we willingly repeat the same, feeling that the interests of all British shipowners are at stake in this matter.

The owners of the American steamers "Maria," Lubbock master, and the "Enterprise," Wright master, now lying at Langiey on Fraser river, contemplate making a change of register for the purpose of enjoying the trade of British Columbia, which we contend they are unable to do, from the fact that the vessels are entirely foreign built, and, as such, should be debarred running on British inland waters. Our construction of the law is that a difference exists between the rights of foreign vessels, which may become British property, to navigate ocean and inland waters, the latter privilege belonging only to vessels actually British built, and entirely owned by British subjects, unless the persons buying foreign steamers built expressly for inland navigation comply with the English law previous to 1851. If such is not the case, there is no longer any protection to British shipping.

In the intended disposal of the steamers we have alluded to, we also think that the actual requirements of the law will not be complied with by the cash payment of the value of the steamers. The acceptance by the owners, of promissory notes accompanied by a mortgage for the value of the steamers, payable out of their earnings, would actually leave the ownership of the steamers in their hands until the profits enabled the purchasers to pay; but as we look upon the matter, the intended sales, being a mere evasion of the law by the owners, would at once be cancelled, and the payment of the notes would not be enforced should one or both of the steamers be lost before the acceptances became due.

The estimated payment for the two steamers\* will be sixty thousand dollars. We may mention that the "Enterprise" was at one time sold for eight thousand dollars, and the "Maria" was also recently offered for twenty-five thousand dollars. If these transfers are carried out, British ship interests on the Fraser River will almost cease, as the entire carrying trade will be performed by these and other American vessels which will be sent up from California.

In concluding our remarks, we would inform your Excellency that British steamers are now being built in England for the inland navigation of the Fraser River, whose owners would most assuredly not have contracted for them had they supposed that American vessels could be thus transferred to the entire prostration of British interests.

We have, &amp;c.

for the Victoria Steam Navigation Company,  
(Signed) JAMES N. THAIN, Secretary.  
for the British Columbia Steam Navigation Company,  
(Signed) ALEXANDER SINCLAIR MURRAY.

No. 6.

No. 6.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 141.)

Victoria, Vancouver's Island, April 25, 1859.

(Received June 10, 1859.)

SIR,

I HAVE duly received your Despatch of the 12th February last, No. 22,\* expressing to me the satisfaction of Her Majesty's Government at the tranquillity prevailing in the

\* Vide papers  
presented  
August 1859,  
page 80.

colony of British Columbia, and commending the efforts I have made to avoid drawing upon the Imperial treasury for the expenses of the colony.

BRITISH  
COLUMBIA.

2. I need not say how gratifying is this approval to me. Her Majesty's Government may rest assured that I will not relax in the application of the most rigid economy to the public affairs of the colony; and I doubt not that, apart from the expenses incurred by the detachments of Royal Engineers and Royal Marines, we shall continue to be able to meet the other expenses of the colony, and that ultimately British Columbia will be able to repay the advances made to her by the mother country.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

No. 7.

No. 7.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 143.)

Victoria, Vancouver's Island, April 25, 1859.

(Received June 10, 1859.)

SIR,

SINCE my report of the 12th instant\* nothing of much importance has occurred \* Page 5.  
respecting the colony of British Columbia.

2. Mr. Begbie returned yesterday from Fraser's River, after visiting all the settlements as far as the Fountain. The country appears by his report to be everywhere quiet.

3. The Indian population have suffered much privation of food in consequence of the dearth of fish and their natural improvidence; but the white miners were well supplied, though provisions were selling at a high price, caused chiefly by the distance from the sea and the heavy expense of transport.

4. The snow was still lying deep in many parts of the road when Mr. Begbie left the Upper Fraser. The miners were, however, beginning their labours, and were moving into the upper country in great numbers.

5. The accounts from the mining bars below Fort Yale are most satisfactory. Mr. Perrier, late justice of the peace, who arrived lately from that part of the country, has given me much interesting information respecting the earnings of the miners, of which I will proceed to give a synopsis for your information. Hill's Bar, on which he holds a mining claim, is yielding more gold than at any former time. The receipts of the companies who supply water for sluicing amount to 1,200 dollars a week, and four men took out of one mining claim the large amount of 4,000 dollars' worth of gold dust in six consecutive working days. Prince Albert's Flat yields from 5 to 12 dollars a day to the man. Emory's Bar was nearly deserted in consequence of the rush of miners to the upper country. Texas and Victoria Bars are yielding fair wages, and even as far down and below Fort Hope the miners are doing remarkably well for the season. The bars are now generally deserted for bank diggings above the highest level of the river, and Mr. Perrier is satisfied that all the table lands between Forts Yale and Hope in the valley of Fraser's River are auriferous, and will yield large wages to the industrious miner. Those diggings are yet but imperfectly prospected and little known, but wherever explorations have been made, a highly auriferous stratum, varying from three to four feet in thickness, has been discovered about eight feet below the surface, and my informant further adds that the surface mould itself contains enough of gold to cover all the expense of its washing and removal.

6. The Royal Engineers and Royal Marines have been all safely landed at Queensborough, where they are now stationed, and Colonel Moody is also at that place making arrangement for their comfortable accommodation and directing the surveys of public land and other affairs connected with his department. Several numbers of the "Victoria Gazette," as per margin, are herewith forwarded for your information.

14 April 1859.  
16 "  
19 "  
21 "  
23 "

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.



COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Victoria, Vancouver's Island,  
May 8, 1859.

(Received June 27, 1850.)

(No. 150.)

SIR,

1. THE latest advices from British Columbia, report satisfactorily as to the peace and good order which reigns in the Colony; the confidence of the people in its auriferous wealth, notwithstanding occasional fits of panic, is unbounded; but there is a general outcry for better roads into the interior, the difficulty of access still forming the great impediment to the development of its mineral resources.

2. The cost of transport enhances the price of food, and of all other necessities of life, from Lytton upwards; to an extent which absorbs nearly the whole of the miners' earnings, large as they occasionally are. The production of food by the cultivation of the soil in the mining districts, and the improvement of the Harrison river route into a waggon road, and otherwise opening the great commercial thoroughfares of the country, are measures of relief to which I have urgently directed the attention of the Commissioner of Lands and Works.

3. The extensive plains on the Pitt, Smess, and Chilwhayook rivers, are to be hurriedly surveyed, and thrown into 80 acre sections for immediate occupation for the purpose of raising food and retaining a permanent population in the country.

4. Sales of town land are soon to take place at Queensborough, Forts Yale, Hope, and Port Douglas, which I trust will bring in a considerable amount of revenue.

5. The Custom House receipts for the last fortnight amount to something over 773*l*. sterling, and will rapidly increase with the growth and expansion of the country.

6. The mining districts yield hardly revenue enough to pay their own police expenses, in consequence of the difficulty of collecting the Licence Fee on miners, who will pay no tax except through the force of compulsion.

7. We must, I think, adopt some other system of taxation pressing less directly upon the individual miner. The miners' right, and the export duty on gold,—features of the Australian system,—recommend themselves from the ease and simplicity of their collection, and having already the machinery and staff required for that purpose. The state of the country is, however, hardly ripe as yet, for the imposition of an export duty on gold, but the day is probably not far distant when the gold will be exchanged in the country and exported in large quantities by banking and commercial houses, when the difficulty of collecting the duty will cease.

8. Many reasons induce me to try another plan, which under firm management would I think work well. By remodelling the whole system of mining regulations in British Columbia, and instead of levying mining fees which would, in that case, be abolished, I would purpose to treat the gold fields simply as crown land, and letting it out in large or small allotments, on leases at a fixed rent, to any persons disposed to work the soil. The revenue would thus be derived from a Land Rent, and not be levied under the name of an obnoxious tax, and tenants would be ejected at will on their failure to pay the stipulated rent.

I will have more I hope to communicate on those subjects by the next mail.

9. Captain Richards is now engaged in Her Majesty's surveying ship "Plumper," in making a survey of the lower part of Fraser's river, and Lieutenant Mayne has been detached to make a reconnaissance of the river to the fountain, with instructions to return by Harrison river for the same purpose, I anticipate much valuable information from the report of that officer, which I will forward to you when received.

The numbers of the Victoria Gazette mentioned in the margin are herewith forwarded.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M P., (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

April 26 to  
May 10.

## No. 9.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

BRITISH  
COLUMBIA.  
No. 9.

Government House, Victoria, Vancouver's Island,

(No. 153.)

May 12, 1859

(Received July 11, 1859.)

SIR,

I HAVE the honour to acknowledge the receipt of your Despatch of the 11th February, No. 20,\* referring to the sale of town lots at Langley, and conveying to me your approval of my proceedings in that matter.

\* Vide papers  
presented  
August 1859,  
page 80.

2. I have perused with much attention your remarks upon the subject of aliens acquiring land, and I return you my best thanks for the same and for your kindness in furnishing me with the Canadian Acts, which will prove of great service in legislating for that class in British Columbia.

3. With reference to your remarks respecting the position of the town, I would beg to state that I was guided in choosing Old Langley as the site of a commercial town chiefly by the partiality displayed for that spot by the mercantile community of the country, whose instincts in such matters is generally unerring.

4. The place, moreover, possesses great natural advantages for trade, being accessible by land from Semiahmoo, having deep water, a bold shore, and good anchorage. The land is also clear of trees, and was surveyed at a very small expense, and therefore perfectly suiting our pecuniary means.

5. The operation on our part was a financial measure rather than one founded on any cogent reason of policy. The locality was popular, and the land realized a larger return of revenue than any other spot on the river would have done. You will doubtless have perceived from my Despatch No. 9,† 3rd November last, that I never proposed constituting Langley the sea-port town of Fraser's River, for which purpose it would not, in my opinion, have been adapted, owing to the obstructions caused by ice in the winter, and its greater distance from the sea than the proposed port of entry, Queensborough.

† Vide papers  
presented  
August 1859,  
page 19.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

## No. 10.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

No. 10.

Government House, Victoria, Vancouver's Island,

(No. 154.)

May 14, 1859.

(Received June 27, 1859.)

SIR,

By an unexpected conveyance, which is on the eve of departure, I beg to communicate to you the latest intelligence I have received from British Columbia.

2. In a letter addressed to the Collector of Customs at Victoria by a Mr. G. B. Wright, a respectable merchant, and dated at Bridge River, April 23rd, some specimens of native copper quartz and gold are enclosed; and Mr. Wright states that the reports at that time from the upper country are of very rich but shallow diggings; that large quantities of gold were then being taken from the bars; and that a great many of the sluicing companies who have permanent diggings were commencing work; and also that men were continuing to rush forward to the Upper Fraser in large numbers.

3. I forward herewith the latest numbers of the "Victoria Gazette."

12th and 14th  
May.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.



BRITISH  
COLUMBIA.

No. 11.

No. 11.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.Government House, Victoria, Vancouver's Island,  
May 23, 1859.

(No. 156.)

(Received July 11, 1859.)

(Answered No. 9, July 28, 1859, page 98.)

SIR,

\* Vide papers  
presented  
August 1859,  
page 78.

I HAVE duly received your Despatch of the 7th February, No. 16.\*

† Do. do.  
page 64.

2. I observe with much satisfaction that the system of land sales which we proposed to continue in Vancouver's Island, and to introduce into British Columbia, has generally met with your approval. With regard to your suggestion that an upset price, lower than 1*l*. per acre for ordinary country land, should be adopted, provided that good practical reasons for such a course should exist, I would remark that during the completion of our arrangements for the sale of land it did occur to me that a lower upset price than before proposed would probably promote the settlement of the country, which might otherwise be retarded, owing to the low rate of land in the adjacent territories of the United States; for these and other reasons the upset price was fixed by the Proclamation of the 14th February last at 10*s*. an acre, as stated in my Despatch No. 104,† of the 19th February last. It is also very gratifying to observe that we have fallen into your views in making one general upset price for the land and in adopting the system of sale by auction, conceiving as we did that the interests of the public would be subserved by that more than by any other mode of sale, and that perfect confidence would be established in the purity of the land sales.

3. The only material point on which we diverged from your own views was in not requiring prompt payment for land and in permitting payment by instalments, say one-half on delivery and one-half at the end of two years.

4. The object of this regulation was to facilitate the purchase of land by settlers with small capital, who form the bulk of the present intending settlers in British Columbia. This system is undoubtedly open to the serious objections so forcibly stated in your Despatch, but we think it would not be advisable to alter it at present, nor until the settlement of the country is advancing favourably and the public revenue begins to feel the influence derived from the progressive expansion of the resources of the country, and through the increase of the Customs duties and by direct imposts on property, and on a population of profitable consumers well capable of paying taxes.

5. The system of prompt payment might, however, be adopted after the partial settlement of the country, when land acquires more than a nominal value, and becomes in a manner a convertible commodity.

6. Country land will be arranged, as you propose, in lots containing aliquot sections of a square mile, and town lands will be laid out as at present in lots of 60 by 120 feet. The latter are put up for sale at 20*l*. 10*s*. 8*d*., and some of the unimproved Langley town lots sold at a rate amounting to 560*l*. per acre.

7. We shall continue to deal with mineral lands in the manner of which you have approved, and shall establish such liberal regulations as may encourage the exploration of the country by letting out the said lands to the discoverer.

8. I feel greatly obliged for the information you have kindly given me of the practice in other colonies in such cases, which will be of much assistance to me.

9. We propose to abolish the system of licences for digging gold, which at present barely pays the expense of collecting, and to substitute an export duty on gold and a direct tax on miners, from both of which measures we expect to derive a large increase of revenue.

10. Surveys are being extended to all the open districts of land on Fraser's River, so that the country may be laid out for immediate settlement and occupation.

11. I shall not fail to furnish her Majesty's Government with copies of all maps and plans which he may prepare, and which I trust may be found useful in awakening an interest in the public mind respecting these colonies.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

No. 12.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 158.)

Victoria, Vancouver's Island, May 25, 1859.

(Received July 11, 1859.)

SIR,

HAVING called upon Captain Gosset, the Treasurer of British Columbia, to furnish me with such information in connexion with the establishment of a mint as he had been able to acquire previous to his departure from England, I received from him the enclosed letter, which in compliance with his request I forward for your perusal.

1 Enclosure.

2. The only point to which I would desire to draw your attention is the allusion made by Captain Gosset to the inconvenience experienced from the want of British coin in this country. This is a serious evil, and if Her Majesty's Government would entertain the suggestion of sending out a supply of coin, it would confer a real benefit on the colony.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

Enclosure in No. 12.

Enc! in No. 12.

Treasury, Queenborough, British Columbia,  
April 25, 1859.

SIR,

COMMISSIONED by the Secretary of State for Her Majesty's colonies to undertake the task of organizing a mint (of which an assay office forms a part), should the necessity arise for such an establishment in this colony, I made it my care to study (kindly permitted by their officers so to do) the American institutions of the same class, both in New York and San Francisco, at which places I was unavoidably detained some weeks on my journey from England.

And not alone the modes of working these institutions, and the differences between their arrangements and those of the Royal Mint, but I made the effect of their operation upon the condition of the people, likewise, the subject of careful inquiry; for alike in so many respects, as are the circumstances attending the infancy of this colony, to the first conditions of California, that from the errors of our neighbours as well as from their successful measures a wholesome lesson seems derivable and an index obtainable of the advantage or otherwise of establishing certain institutions similar to those existing in the adjacent gold state.

It was with deep interest, therefore, and an anxious desire to arrive at a sound conclusion, that I sought information from various classes of persons in San Francisco, including many who had returned from prosperous and non-prosperous operations on the Fraser River.

Not, however, until by personal inquiry amongst the mining population remaining on the Fraser (prosecuted in the month of January last), and amongst the miners *in transitu* to our gold fields since that time, as to the feelings of that important class, nor (in consequence of the discouraging accounts at the beginning of this year) until the yield of gold seemed to warrant me in addressing his Excellency the Governor without danger of error, have I felt myself justified in stating, as I now do, in confident terms, my opinions that those branches of a mint comprised under the heads of a smelting house and assay departments should be established in Queenborough with the least possible delay; not merely as being certain to prove directly beneficial to the public revenue and to the community at large, but for the broader purpose of developing the wealth and advancing the general prosperity of this colony.

In California I became convinced of the following points:—

1st. That the establishment of an assay office has *greatly tended to retain population in the state.*

2nd. That the public, although not hitherto perfectly satisfied with the arrangement of the San Francisco Government Mint, yet placed more confidence in the smelting and assay departments of that institution than in the smelts or assays made by private practitioners. By those familiar with the confidence justly reposed in the private assay houses of London this assertion might be reasonably doubted, were it not explained that in a new country so few are the established firms, and so numerous the ignorant and questionable characters who embark in all kinds of professions, trades, and callings, with or without the slightest knowledge of the subject or guarantee for integrity, that general distrust is engendered against the whole.

3rd. That, therefore, nine-tenths of the gold of California is smelted and assayed at the San Francisco Government Mint; one moiety of the remainder seeming to find its way to the Government Assay Office in New York.



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COLUMBIA.

4th. That nearly, if not quite, the whole of the British Columbian gold has been smelted and assayed at the San Francisco Government Mint.

5th. That by a trifling charge per weight the smelting and assaying departments are made self-supporting.

6th. That the mining population of British Columbia, unable to obtain proper value for their gold in British Columbia, did, in large numbers, return to San Francisco solely for the purpose of having it assayed there; and that the colony of British Columbia not only lost the fruits of these miners' labour (for once in San Francisco, the miner scarcely ever returned until his earnings were exhausted), but lost the benefit of these men's time and industry during their absence.

To this, with the fact of there having been no port of entry in British Columbia, nor any guarantee for agricultural settlement, may be ascribed the depopulated state of British Columbia when I arrived in the colony, a condition but little mended by the scanty re-immigration which has yet taken place, the evils adverted to being still in existence.

With the belief, however, that Queenborough will be shortly open to commerce, with a hope that arable land will be placed within the powers of desiring purchasers, and that roads to the mines may receive early attention, and with evidence of auriferous wealth, indisputable since the receipt of gold for the last quarter, there seems to exist but one opinion that the first steps towards the formation of a mint at Queenborough will materially tend to aid every other measure of Government, to strengthen commerce, and to check the nomadic habits of the miner.

By the admirable express arrangements of the transit houses, the gold will follow one known channel,—trade compels this,—and that channel will be to, as it is already by, the declared capital of British Columbia. At the capital, therefore, as in most countries, there should the mint be established, and not on Vancouver's Island, as proposed by the House of Assembly of Vancouver's Island, and, in all respect I venture to think, inadvertently acquiesced in by his Excellency the Governor of the two colonies.

The very best intentions of so costly an establishment would be frustrated by taking the gold, for coinage, 100 miles across the sea, away to a colony not itself gold producing, nor likely to be other than of secondary magnitude as compared with British Columbia, to be again returned with the charge of double freight and double insurance to the producers of the metal.

The very eagerness of the Vancouver House of Assembly to grasp at a mint is evidence of this; the House doubtless felt that a mint in Victoria would tend to draw population and trade away from British Columbia, and to raise their town into the position of a capital to British Columbia, to their own advantage, but to the detriment of their sister colony, of which I venture to count myself one humble guardian.

Not only, in my humble opinion, does it appear imprudent for the Government of Vancouver's Island, especially in the present state of its finances, and without any immediate prospect of increased resources, to contemplate the establishment of a mint for the purpose of coining the metal derived from the heart of a neighbouring colony, but I should even deem it inadvisable for British Columbia to come to too hasty a resolution on a matter involving, as proved by the cost of the Sydney Mint, 60,000*l.* to 80,000*l.*

For although the want of coin, and especially of British coin, at the present moment must be a matter of serious disquietude to his Excellency, yet, on arrival of the bank, expected daily, this grievance will be lessened by the circulation of notes; and, could the Home Government be induced to send out (not as a loan, but to be repaid in bullion), of,—

Sovereigns	-	-	-	-	-	£60,000
Half do.	-	-	-	-	-	20,500
Florins	-	-	-	-	-	11,000
Shillings	-	-	-	-	-	5,000
Pence	-	-	-	-	-	2,500
Half do.	-	-	-	-	-	1,000
Total	-	-	-	-	-	£100,000

the grievance would, in my opinion, be removed for a considerable time to come.

That under any circumstances of prosperity two mints should be formed, I presume no one would contend; one has been found ample for the whole of the Australian Colonies, Van Diemen's Land, and the New Zealands. In that colony, therefore, firstly, yielding the precious metal; secondly, possessing even now, depopulated as it may be considered, the larger population, and promising a proportion immensely greater, wherefore greater means, greater revenue, and all those many other conditions which would alone justify Her Majesty's Government in assenting to the introduction of so important a department; and in that colony alone should it, in my humble judgment, be understood, that when the necessity arises, there, and not in Vancouver's Island, will a mint be formed.

That it would be premature even in British Columbia to establish an entire mint, I have stated, but that the time has now arrived for introducing a portion of such an establishment there I have likewise premised, and now recommend immediate action.

I shall therefore propose that I be permitted to communicate with the Commissioner of Lands and Works, in order that suitable smelting and assay buildings may be prepared by the time the subordinate officers for these branches may arrive from England; and further, that these gentlemen, three in number, with two assistants, and all the smelting and assaying implements, should be sent out by way of Panama.

Should further assistants be required, I have no doubt of obtaining suitable men in the colony for instruction in the manipulations, whereby in three months after the arrival of the party from England

I would guarantee to be in a position to meet the emergency of great pressure or illness amongst my staff.

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But for the express purpose of engendering confidence in the department at the outset, I look upon the procural of assistants in the first instance direct from the mother country as of the utmost importance. Assayers might be obtained from California, but for the very reasons adverted to in a former part of this report, such men would not invest the department with that thorough reliability which it is absolutely essential that it should at once command, not only that it may succeed, but for the credit of the Government in so delicate a matter as the adjudicating the quality of the precious metal.

The expense of such an arrangement will probably be, for the first and second year :—

	1st Year.	2nd Year.
1 Assaying officer - - -	- £400	£450
1 Smelting officer - - -	- 400	450
2 Assistants - - -	- 500	600
1 Accountant clerk - - -	- 300	350
Implements - - -	- 1,500	100
Transit of party and stores - -	- 500	—
Buildings - - -	- 500	—
	<u>£4,100</u>	<u>£1,950</u>

Properly conducted, I should have little doubt of making such a department self-supporting after the first year.

As the Master of the Royal Mint, with whom I was placed in communication by the Lords Commissioners of the Treasury, will doubtless be called upon for report and assistance in this matter, I purpose doing myself the honour of transmitting him a copy of this report, and addressing him on the subject of those many details, which would but encumber this letter, and will be perhaps better arranged, being purely professional, by direct correspondence between us as professional men.

In conclusion, having referred to the expense of the Sydney Mint, without committing myself to any opinion that experience and improvements in the manufacture of machinery since 1851 might not enable a similar department to be outfitted at a somewhat less cost than 60,000*l.* to 80,000*l.*, yet I should certainly deprecate any attempt to establish, in any of Her Majesty's colonies, a department of so important a class on any other than the most perfect footing. The coinage of Her Majesty's realm should ever stand pre-eminent amongst nations; its sterling qualities, value, and workmanship should never be sacrificed at the shrine of economy or present convenience.

With regard to the adoption of the currency of the United States, I do not perceive the necessity for hastily declaring in favour of a foreign metier; nor, in my own opinion, is there any ground for departing from Her Majesty's initial coin, the British sovereign, possibly substituting for the existing a decimal arrangement proceeding therefrom; of which already there has been issued (I believe as a tentative coin) the much-esteemed florin, the tenth of which might be termed a groat, reviving an old English name of somewhat the same value, with one-tenth again, as a mil or mille; such a decimal arrangement being that which (I believe) would have been recommended by the Commission of Inquiry into the subject, but for the one argument, advanced by dealers who received and disbursed farthings in thousands per diem, viz., that the poor of Great Britain would suffer by the alteration of the farthing, or  $\frac{1}{4000}$  of a pound to the  $\frac{1}{10000}$ , an argument which would have no weight here, where poverty is unknown, and where the habits of the people and their prosperity induce a positive disregard of fractions under a 5 cent (or about  $2\frac{1}{2}$ d.) piece.

It seems proper, before closing this report, that I should draw his Excellency's attention to your letter of the 8th of this month, requesting my opinion on the address of the House of Assembly of Vancouver's Island, praying that the Governor of Vancouver's Island would "urge upon the Home Government the desirability of establishing a mint" in their colony, to which letter this report, commenced as soon after the termination of last quarter as I was able to procure from the various dealers accurate statistics of the gold yield, and enlarged to meet his Excellency's desire for my opinion, is intended as a reply.

If in stating my views, when in opposition to those entertained by his Excellency, I have been led into any observations that may seem objectionable, I must beg to be excused, for the sake of the gravity of the questions proposed, believing that a right conclusion will be better drawn by those who will decide from the consideration of frank and honest statements, than representations enfeebled by a weak desire to avoid points of the greatest moment which may be at variance with the Governor's sentiments.

Having been requested by Sir Edward Lytton to place him in possession of my opinions on the subject of a mint in British Columbia, so soon as I could give a reliable report through the proper channel, I have the honour to request that his Excellency the Governor may be pleased to forward the accompanying copy of this communication to the Colonial Office.

The Acting Colonial Secretary,  
&c. &c. &c.

I have, &c.  
(Signed) W. DRISCOLL GOSSET,  
Treasurer.



BRITISH  
COLUMBIA.

No. 13.

No. 13.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M P.

Government House, Victoria, Vancouver's Island,

June 6, 1859.

(Received July 25, 1859.)

(No. 165.)

SIR,

THE sale of building lots at the new town of Queensborough took place on the 1st and 2nd of the present month at Victoria.

2. The result has proved most satisfactory as a financial operation, and indicates a general confidence in the future of the colony.

3. The actual amount of sales was rather over 89,000 dollars, on which a deposit of 25 per cent. was made on the purchase, the remaining balance to be paid in three equal instalments on the 1st day of July, August, and September next respectively.

4. 318 lots were offered for sale, and 310 were sold. 110 lots are reserved for future sale. The largest sum realized for a single lot was 1,925 dollars, and the average price of the lots sold was nearly 290 dollars.

5. The accompanying statement from the Department of Lands and Works is transmitted for your information. It distinguishes the actual sums of money received and due on the sale from the amounts already paid on Langley titles, which were transferred to Queensborough under the provisions of the Proclamation of 14th February last. It is not impossible that this concession led in some manner to the high prices obtained for the Queensborough lots.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

Enclosure in No. 13.

BRITISH COLUMBIA.

Sale of Queensborough Town Lots.

Actual amount of sales	-	-	-	-	-	-	-	\$89,170
Amount of instalments received in cash	-	-	-	-	-	-	-	11,363 <sup>16</sup>
Ditto receivable in cash	-	-	-	-	-	-	-	50,863 <sup>25</sup>
								\$62,227
Amount received in Langley titles	-	-	-	-	-	-	-	11,192
Ditto receivable ditto	-	-	-	-	-	-	-	15,751
								\$89,170

(Signed) ROBT. BURNABY,

June 4, 1859.

pro the Chief Commissioner of Lands and Works, British Columbia.

No. 14.

No. 14.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Government House, Victoria, Vancouver's Island,

June 8, 1859.

(Received July 25, 1859.)

(Answered No. 16, September 5, 1859, page 101.)

(No. 167.)

SIR,

SINCE my last report a number of miners, originally from California, have returned to Victoria from the Upper Fraser River. Many of these men have amassed large sums in gold; the majority of them have not, however, been so fortunate.

2. They assign various reasons for leaving the country; some the high price of provi-

sions; others a desire to see their friends, and to spend a few months comfortably in California; others the irregularity and shallowness of the diggings in the Upper Fraser district; all, however, admit that any industrious man can at any time make from four to five dollars a day, but owing to the high price of provisions that sum will scarcely maintain the miner in that part of the country.

3. The cost of transport from Victoria to Lytton is the real cause of the high price of provisions.

4. The river steamers, however, have lately reduced their fares, and now make a reasonable charge for freight, probably not more than is remunerative. The great impediment to the development of the interior resources of the country now arises from the want of roads. British Columbia can never become great or prosperous without them, and we purpose devoting all our means and energies in improving the Harrison River road into a good waggon road.

5. A body of Royal Engineers and Royal Marines, numbering about 100 men, augmented by 30 civilian labourers, will be detached for that service as soon as Lieutenant Palmer, who is now employed in surveying the road, has completed his report.

6. The successful completion of this great enterprise will open a safe, easy, and comparatively inexpensive route into the interior of British Columbia, and give facilities, at present unknown to the miner and the merchant, for the development of its mineral resources.

7. The people at Port Douglas have expressed their willingness to aid, either by their personal labour or by pecuniary contributions, in this important work; as, however, none of them are wealthy, their contributions will not be great, but their zeal for the progress and prosperity of the country is encouraging to us and very honourable to themselves.

8. Another road is now being opened from Fort Hope to Lytton on the left bank of the Fraser; it follows the valley of the Quiquialla, and from thence strikes Anderson River, which it keeps as far as Quayome, from whence there is a good road to Lytton. This route was discovered and explored by an inhabitant of Fort Hope, and the people with great spirit immediately raised the sum of 2,000 dollars among themselves for the purpose of opening a horse-path, which is made nearly half the distance to Quayome. Lieutenant Lempriere and two men of the Royal Engineers, who were lately sent by Colonel Moody to examine that line of road, will report upon it hereafter, and we propose giving further assistance, if requisite, to promote so useful a work.

9. Our latest advices from Fort Yale report that a number of miners had arrived at that place from the upper country with unfavourable reports of the gold districts; on the other hand, the Commissioner at Lytton reports that the persons who have left that part of the country are a class that can well be spared, being principally gamblers and idlers, who will not steadily follow any avocation. The feeling against the mining licence fee is very general among the miners, and the tax is almost unproductive of revenue.

10. We are now engaged in remodelling the mining laws of British Columbia, so as to approximate them as nearly as circumstances will permit to the mining laws of Australia.

11. We have issued the new Customs Act and the Alien Act, which I will shortly forward to you. A very interesting report from Mr. Begbie, Judge in British Columbia, is herewith forwarded for your information. <sup>1</sup> Enclosure.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

Enclosure 1 in No. 14.

Enclosure 1 in  
No. 14.

SIR,

Victoria, April 25, 1859.

1. I HAVE to report to you my return from the circuit which I have just held in British Columbia, as far as the Fountains, to which point I followed nearly the course of Fraser River. From thence I returned by the Lilloet route and the Harrison River to Langley.

2. I have already had the honour to report for your information the proceedings at Langley, at Fort Hope, and at Fort Yale.

3. Accompanied by Mr. Nicol the High Sheriff of British Columbia, and by Mr. Bushby the Registrar and Assize Clerk, or who at least acted in these capacities, I left Fort Yale on foot on the



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28th ultimo with an Indian body servant, and seven other Indians carrying our tent, blankets, and provisions for Lytton on the forks of Thompson's River.

Acting on the suggestions of the Chief Commissioner of Lands and Works, Mr. Nicol and myself made a reconnaissance of the entire road travelled over, the result of which I hope shortly to be able to plot out and place in your Excellency's hands.

4. There being a considerable quantity of snow on the ground, we could not follow the mule trail, but kept on the right bank of the Fraser River until two or three miles below Quayome or Boston Bar.

There are one or two restaurants on the road, one at Spuzzen, one at the top of the hill immediately above Yale, one at Quayome, and another about 18 miles from Lytton; but we found it would have been an extreme inconvenience to have been without a tent and without a sufficient supply of provisions for the entire route. It would even be extremely economical to provide at Fort Yale the whole of the necessary stores to carry round the whole way across the portage between Lake Anderson and Lake Lilloet. Provisions we found to be at (to us) unusual prices,—flour, *e.g.*, 20*d.* to 2*s.* per lb. until we arrived at Lake Lilloet.

5. The trail between Fort Yale and Quayome, by which we advanced, was at that time I should think utterly impassable for any animal but a man a goat, or a dog. It might, doubtless, be very much improved. In many places a very painful and dangerous ascent and descent of 20 minutes, in the whole course of which the traveller depends almost as much on his hands as on his feet, brings the path to within a few yards of the projecting precipice through which a few pounds of powder would have made an easy way. But it suggested itself as extremely doubtful whether it would be worth while at present to engage in any improvements on this part of the line until the far easier Lilloet route be rendered practicable, as it might for a considerable extent very readily be for carts.

6. Between Fort Yale and Quayome there did not appear to be any land, except a few spots here and there of a very few acres in extent, capable of cultivation; but the soil was rich and well fitted for roots, and at Spuzzen accordingly the Indians had considerable potato patches; but nothing like an English farm could be established.

7. Above Quayome the trail to Lytton presents no serious obstacles to prevent a cart road being made, except in two places. The country above Quayome very much changes its aspect. There are almost immediately found benches of fertile land, comparatively free from underwood, but tolerably thickly wooded with large trees not more than convenient, however, for farming purposes, which in fences, fuel, and log huts, rapidly consume timber. About half a day's journey below Lytton a considerable enclosure of about 200 acres is made by felled trees, a Frenchman, whose name I did not learn, intending to make a farm there; very many such might be made.

8. There are considerable beds of slate opening on the Fraser River, a couple of miles above Quayome, and these make their appearance two or three times before arriving at Lytton. At the place where I observed the first slate bed there is also apparently a spring highly charged with carbonate of lime, but it does not appear to be abundant, and, as far as I could trace, appeared to flow but from a very little distance above the bank. Leaves and branches of trees were thickly encrusted with a chalky or marly deposit, but were not hardened or petrified. There were also on the beaches of the river, often seen limestone boulders; but I did not observe any *in situ*.

There was a great change in the climate after passing the Quayome River; it was much drier, the springs less frequent, the soil sandier, the undergrowth much less dense, and the spruce, hemlock, Douglas, and cedars which we had carried all the way from the sea all disappeared by degrees, and were replaced by a pine, very similar to the Scotch fir, but with longer spines. The first place where we noticed this tree we named Scotch fir point.

9. Lytton does not appear a well chosen site for any town. It is on the higher of two benches parallel to each other and to the River Fraser, the lower one being the narrowest, both terminating in a very steep descent, as steep as a man can descend without using his hands, to the River Thompson, I should think 300 or 400 feet deep. The upper plateau, on which Lytton is placed, descends by a similar bank of about 100 feet high to the narrow bench, which again descends by a similar precipitous bank upon Fraser River. At the south end of the town there is a very deep gully, which runs a considerable way into the mountains on the east of the river. Up this gully a road might be brought from the Fraser; it is, I think, the easiest way; but it would probably be from 1 mile to 1½ mile in length for carts. There is only one little rill of water to supply the town; it is adequate for the few houses now there, but quite insufficient for a town of any size. Mr. Nicol and myself ascended its course (it is an artificial ditch brought by miners) for about 1½ mile, in order to see whether it was larger at its source, or diminished by percolation, as we had been told that at that distance it was 15 times its bulk below. We found that this was an entire misrepresentation; we fancied indeed, but sometimes entirely changed our opinion, that the stream above contained somewhat more water. We had no means of gauging the rill. It is probably the fact that some water is lost, which by a careful system of waterproof piping might be available for the supply of the town; but at best it would be no more than a tolerably rapid flow in a channel a foot wide and 4 or 5 inches deep, not much more than in a sluice head on a single mining claim. Waterworks might easily be constructed to any extent upon the Thompson River, which runs swiftly, and in a very clear and abundant stream. From the nature of the soil I do not think wells would answer; I recollect that when I was on the spot the soil appeared to be more dried up than it now appears. I believe that the appearance was caused, not by aridity, but by severe cold. It is, however, very dry. There is on the right bank of the Fraser, above the Forks about three-quarters of a mile, a much more eligible site for a town, a plateau communicating with the river at a convenient height, and again with many other plateaus of various sizes and of various heights above it, with abundant water supply in a large brook which runs strongly behind it, and abundance of wood behind, which at Lytton appears to have been rather scanty at the first, and now is all swept off for log houses and fires.

The only objection to this other site is, that it is a short distance above the mouth of Thompson's River, so that travellers up that river would have to go three-quarters of a mile out of their way to visit the town.

10. The shores of Fraser's River were thinly dotted by miners on both sides: the great mass of miners were forcing their way up with provisions in boats; a very few were going up on foot; nearly the same number were returning on foot, alleging the high prices of provisions in the upper country.

They were high enough at Lytton, where we were charged three dollars a head for each meal, consisting mainly of bacon and hearth-made bread.

\* \* \* \* \*

11. It was a great inconvenience to have no access to any books or plans of the town, which were all locked up. There were a few contested lots, but not many, and I should think the difficulties are not hard to settle.

12. In the view of the extreme dearness and scarcity of fresh vegetables, I authorized one James Tackley to enclose and cultivate a small strip of land, about an acre, near the river Fraser; such authorization to confer no pre-emption right nor any right whatever after Christmas next, and not to be alienable except by consent of the Chief Commissioner. I afterwards viewed and consented to cultivation on the like terms at the following places:—

10 acres, 2 men (Milroy, Scotch), about 10 miles above Lytton.

5 acres, near the point of junction of the Lilloet route with the Fraser to a Lower Canadian.

5 acres, at the upper end of Lake Anderson, to one Berger.

40 acres, being 5 acres each to 8 men, at the half-way house between Lake Anderson and Lilloet.

Gourley, a Scotchman, at the head.

2 or 3 acres to the innkeeper, 10 miles above Port Douglas.

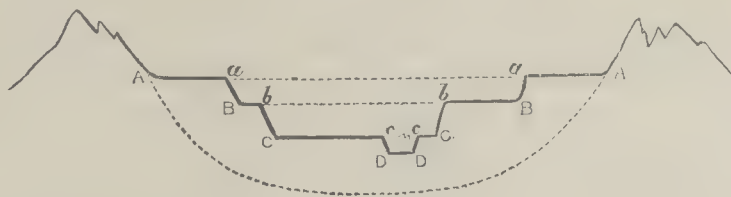
Three other applications, upon which Mr. Nicol will probably have reported to the Chief Commissioner of Lands and Works, were made for larger quantities; viz., Mr. Bryant for 250 acres, near Pemberton; Duncan Robertson for 50 acres or thereabouts, near Port Douglas; and an innkeeper, four miles above Port Douglas, for a similar quantity.

There was a considerable degree of anxiety manifested everywhere for the possession of land; in some instances the mere right to take the crop was not satisfactory, in others it was acquiesced in.

13. At Lytton considerable excitement was manifested with reference to some ditch regulations which were then recently promulgated, and which I had not seen until I found them placarded on Captain Travaillet's office door. The miners generally alleged that the quantity of water allowed to a ditch was too small; that in consequence of the lightness of the soil, the water in a ditch is lost by percolation; and although calculated by the Government to be sufficient for two sluice heads and charged as for two claims, is in fact scarcely enough for one when it reaches the spot worked; and that lumber is so dear and scarce (375 dollars per thousand,—in fact, not to be had in any quantity), that fluming is impossible. The gold they allege to be very uncertain in its deposit; and that small claims may sometimes be worked out in a day, while others may prove extremely valuable. They allege further that it is very convenient to have or to be allowed to have ditches owned by parties entirely unconnected with the claims, who may sell the water in those ditches without limitation as to price or quantity. They did not seem to object to the limitation to sell only to licensed miners.

14. As my own view, on the theory which I formed of the geological formation of the valley of the Fraser in this direction, is, that the whole valley and benches together are auriferous, and would pay under a large system of water working. I did not pay great regard to their complaints as to the uncertain nature of the deposits in the claims; which indeed I had from practical experience an illustration of. Mr. Nichol and myself washed about 20 pans and obtained 75 cents' worth of gold. The next 5 pans taken from the same spot yielded 2 dollars; all in rusty scale gold.

15. The singular feature of level benches of various breadth, consisting of vast thicknesses of alluvial deposits, loam more or less sandy, and water-worn boulders, gravel, and pebbles, the benches being of various heights one above the other, parallel in their general direction with the course of the river and the mountains, between which it runs, and generally matched on either side of the river, forcibly recalls the "parallel mountain roads," as they are called among the Grampians in Scotland: which are now generally accounted for by geologists on the theory of the whole space between the boundary hill ranges having been originally a vast lake, and of successive elevations of the earth's surface; a theory to which the neighbourhood of active volcanic ranges gives much plausibility.



According to this theory, to which Mr. Nicol and myself gave attention in considering the country, and which seemed to explain all the phenomena, and to acquire additional plausibility from the different appearances which we remarked as we proceeded, but a detail of which would be out of place, A A along the dotted line formed at one time the bed of the lake. The earth's surface was locally raised so that



*BB* stood as high above the level of the sea as *AA* originally stood. The sudden rush of water swept away by denudation all the portion of the original deposit included between *BB* *aa*. A similar upheaval again occurred, which caused the denudation of the space *bccb*. A third denuded *cddc*, and left the water to flow no longer in a lake, but contracted to the limits of a river, in its present bed *DD*. It is probable that when so large a lake existed above the Forks, it would arrest as in a trough, exactly as is done by the miner's sluicing trough at the present day, only on a gigantic scale, all the finer particles of gold brought down by the river from the mountains in the distant upper country. It is probable, therefore, that at the distant geological epoch, when a long lake or a long series of lakes extended for many miles above the Big Canon, as far as I visited the country from about Quayome to some miles above the Fountains, a distance of 80 or 90 miles; the banks and bed of the river below these lakes was not auriferous, at all events not so highly auriferous as at the present day. But on the theory that the sediment at the bottom of these lakes was all more or less auriferous, and that vast quantities of the sediment in successive portions were, upon each successive upheaval of the surface, hurried down by the mighty rush of waters through the Cañons, and into and over the smoother country below them, commencing at Fort Yale, we have again an exact repetition of the process witnessed every day in every rocker throughout the country. An enormous quantity of "pay-dirt" was at each upheaval cast into the vast sluice of the Frazer. The scale gold would be all intercepted in the rough beds of the river as it successively grooved out for itself another and another channel through the ancient bed of the original lake, or at all events in the holes and eddies in the rocks in its passage through the Cañons.

This is the sieve of the rocker, where the scale gold is, unless the rocker be unevenly worked, always retained. The finer particles,—the flour or dust gold as it is called,—would be carried over the sieve by the rush of water on to the blanket, and would principally be retained in the first part of the blanket nearest the sieve. Hill's Bar and Prince Albert's Flat, and the district generally from Fort Yale to Fort Hope, accordingly are all impregnated with flour gold more or less, and generally more so than the country below, or far below Fort Hope. But the whole of the blanket in a rocker is worth searching, and is accordingly searched by the miner periodically; and we find "flour gold" accordingly down to Langley. It is a further corroboration of this theory, that while flour gold does not amount to above 15 per cent. of the gold found at the Forks, 85 per cent. or upwards of the gold found there being scale gold, I have never heard of a single scale being found at or below Fort Yale.

16. If this view be correct, there are therefore in the benches at and around Lytton dry diggings on the most enormous scale. The district I visited from Quayome to the Fountains is about 70 miles long, and from one mile to five or six miles wide; and in many places 100, 200, and 400, in some even 1,000 feet thick. Every spadeful I believe to be auriferous. The bed of the river pays the whole distance from \$5 to \$100 per hand per day; \$12 is not unusual. It is, however, probable that the banks high above the river could not be worked advantageously without the application of copious washing. But the streams from the mountains on each side are very rare, compared with what is found below the Quayome, and water privileges are correspondingly valuable. There is, of course, a never-failing supply in the Fraser; but many of the benches are 600, and even, I should guess, 1,000 feet above its present bed (by estimation), and considerable hydraulic works would have to be undertaken, and by very different ditches, and on different principles from those now in force. It would be a question of engineering on a large scale.

17. The character of the country at Lytton is preserved all the way to the Fountains, and for as far as the eye can reach above Fountains, some four or five miles. The whole of the country is tolerably well adapted for stock. It appears rather too dry a climate for arable cultivation. There is abundance of bunch grass. Water is not everywhere met with on the benches above the river, but the Fraser is always there.

The soil is sometimes covered with shingles, at other times too sandy, but in general a light loam. The pine trees already described appear by their resinous, spiky leaves, which strew the ground in great abundance, to make it much drier than it otherwise would be. These trees would soon be removed for firing, enclosures, and houses, and the country improve accordingly. There is no under-wood.

We procured horses from the Indian chief Spindlem for carrying our blankets, &c. over this portion of the route. In consequence of the dangerous nature of one part of the trail, called the "Slide," a few miles above Foster's Bar, 18 miles from Fountains, the mule trail quits the Fraser at Foster's Bar, and ascends a small stream to an elevated plateau, descending by a beautiful valley to the plateaus above the Fountains.

On the top of the pass we found (7th April) three lakes all frozen. Mr. Nicol and myself got upon one, and found the ice about  $4\frac{1}{2}$  inches thick. This plateau, however, wherever the snow was cleared away, showed an uncommonly rich vegetation in grass, equal almost to that on the Pitt Meadows—a fine rich black mould—and uncommon advantages (save for its great cold) for dairy farming. It appeared as if an unbounded number of cattle might be maintained in this valley, or rather double valley and pass, the lower parts of which seemed well adapted for the plough.

The pass, which we estimated at about  $16\frac{1}{2}$  miles long from Foster's Bar, opens on the two vast level plains, on the lower of which Fountains is situated.

These each of them contain apparently 1,000 to 1,500 acres, with scarcely a tree or deviation from level, covered only with bunch grass, and terminated on all sides, except towards the mountains, by precipitous descents towards the river, each of which we conjectured to be not less than 500 feet, so that the upper plateau might be 1,000 feet above the level of the river.

From hence Fraser's river is seen coming down in a succession of beds in a narrow bed, edged with high narrow benches from the north-west, closely confined by lofty mountains, from 4,000 to 7,000 feet high.



18. On the southern part of the lower plateau are a few houses, stores, and tents.

This is the Fountains. We had fresh meat here, the first since leaving Fort Yale. We found that Captain Travailot, who had promised to meet us here, had left on the previous day, leaving word that he would wait for us at the point where the Lilloet trail falls on the Fraser River. There were notifications of the new ditch orders; and that one Mr. Kelley, who kept store there, was appointed to receive payment of mining licences and other Government monies. The price of provisions was higher, if anything, here than at Lytton. The place seemed very dull. There were a few miners passing up and down. Some settlers seemed disposed to build, but the majority of those persons I saw wore an idle look; the bulk of the miners pass along the river far below, and, being supplied with their own provisions, they do not climb the high steep bank, at the top of which there is nothing to reward their pains, for the stores are of the commonest sort, and there are no drinkable liquors, nor, so far as I could see, any facilities for gambling. The spot is probably the best in the immediate neighbourhood for a town.

19. We left the Fountains the same afternoon for the place called Lilloet in this neighbourhood, *i. e.*, the spot where the Lilloet route falls on the Fraser, and which I shall designate by the name Cayoosh. The river which drains the lakes Anderson and Seton, and falls into the Fraser at this point, is called "Nkoomptch Falls." But two miles above the Fraser it receives a considerable accession in the Cayoosh brook, which, being easier pronounced, is preferable, and is used in the locality among the whites to designate the Nkoomptch proper. The trail, which is in general on a bench, with interruptions in some places, but which might easily be made into a good waggon road, passes in front of the mouth of the Seclatqua or Bridge River, at two miles; and, at four miles below Fountains, crosses by the ferry recently granted by Captain Travailot to Aimable Bonnet and Calmel. The tolls are perhaps not too high for the present rates of wages and provisions. The right is only granted for a year; and at the end of that time, or of a second year, they might probably be revised. The ferrymen were about to establish immediately a boat for foot passengers opposite Cayoosh, as it was found that many people crossed there. I saw a good deal of them during several days; they seem civil and well-conducted men.

20. Cayoosh is decidedly the most favourable position for a town that I have seen above Fort Hope, apart from its important position at the gorge of the Lilloet route. It is on the right bank of the River Fraser, at some distance from the river, and at a considerable height above it. The level benches on each side of the river, and which are all perfectly free from underwood, extend from above Fountains to a considerable distance below Cayoosh on the left bank, and terminate a little below the junction on the right bank of the Fraser, a distance of at least 11 or 12 miles in length, and of a breadth in the whole varying from one to four miles. There are probably some 20 or 30 square miles of land ready for immediate occupation, the whole of which is fit for some description of farming, and about half of it admirably adapted for any description, either sheep, cattle, or the plough. In some places it is too sandy, in others too strong for the plough, but in these places there is an abundance of bunch grass, well adapted for stock of any sort. The soil is uniformly a red loam, in some places of exceeding richness and friability, degenerating in some parts into sand, in others covered thickly with large water-worn pebbles.

I have already pointed out to your Excellency a sketch of the particular plateau on which we, Mr. Nicol and myself, thought a town could with most advantage be placed. It is on the right bank of the Fraser, immediately above its confluence with the Cayoosh.

21. Two chiefs, said to be of extensive authority, paid me a visit while at Cayoosh. They complained of the conduct of the citizens of the United States in preventing them from mining, in destroying and carrying away their root crops without compensation, and in laying wholly upon the Indians many depredations on cattle and horses which these Indians informed me were in part at least committed by "Boston men." On the other hand many cases of cattle stealing were alleged by the whites of all nations against the Indians, and stealing indeed of anything which could by possibility be eaten. For even the cattle which Indians stole they did not attempt to sell or make use of otherwise than as food; and it was admitted on all hands that many hundreds of Indians had died of absolute starvation during the winter. The Indians said that the salmon had failed them now for three years together. The whites alleged, what is obvious to everybody, that the Indians are extremely averse to work except under the pressure of immediate hunger; and that they are so improvident as rarely to look beyond the wants of the day, and never to consider the wants of a winter beforehand. If I may venture an opinion, I should think that this is much more true of the savages who have never been brought into contact with civilization, than with those who have had even a little acquaintance with the whites. We found almost everywhere Indians willing to labour hard for wages, and bargaining acutely for wages, and perfectly acquainted with gold dust and the minute weights for measuring one and two dollars with. These circumstances are inconsistent with an utter heedlessness for next day's provisions; for in all cases we had to find these Indians in provisions as well as wages. And the amount of wages for the most abject drudgery to which human labour can be put (*viz.*) carrying burthens, being 8s. per day and provisions pretty uniformly wherever we went, shows of itself a very high average rate of profit as the wages of labour in British Columbia. If this is the average remuneration of the most unskilled labour, what ought skilled labour supported by capital to earn?

It was the uniform practice of storekeepers to entrust these Indians with their goods, generally 100lbs. flour, beans, or pork, and provisions for their own subsistence. Thefts were said to be unknown, and great care taken of their burdens. And these individuals who work I found extremely fleshy and hearty. My impression of the Indian population is that they have far more natural intelligence, honesty, and good manners than the lowest class, say the agricultural and mining population, of any European country I ever visited, England included.

At Cayoosh I tried to cause a grand jury to be summoned to present all these matters formally to me; but there were not twelve British subjects there.



22. The road from Cayoosh to Lake Seton four to six miles according to the point of departure, is in one part not practicable for mules. They ford the stream accordingly at present. The muleteers propose to bridge the stream before the summer floods set in. They have already bridged it in one place, between Lake Seton and Lake Anderson, at their own expense, \$180. With one exception, there is no bridge on the Lilloet trail comparable to this, and with that one exception (worth perhaps \$80 to \$100), no ten bridges on that trail are together as considerable. This part of the route might be easily made a good carriage road by means of two bridges; one of which, however, on to the bench at Cayoosh, would be a considerable undertaking. The rest of the distance would be a very simple matter indeed; the ground is flat and tolerably clear, the bottom very sound, large coarse gravel affording excellent foundation; and there is on different slides from the cliffs any amount of beautiful naturally broken Macadam of any size. The actual trail, shrinking from crossing the stream, follows generally a narrow, rocky, precipitous winding goat path along the cliff. The mules follow the other trail partly.

23. On Lake Seton there is excellent access to the water: it never freezes. There are here two or three houses used by the boatmen and muleteers. This little settlement, I suggest, may be called Seton-foot. There is a very good whale boat and a scow in bad condition on this lake. The mountains come down on it so steeply for the greater part of its length on both sides, that I should consider a road out of the question. At the upper end there were also a few houses and another boat building, probably launched by this time. It is stated that from the point where the Nkoomptch and the Cayoosh join the valley of the Cayoosh proper leads to another large lake, which leads to a pass, the other side of which descends on Harrison Lake, a distance of three days. This point of junction of the Cayoosh and Nkoomptch is of course below Lake Seton; it would of course be extremely important to discover such a pass, as it would be shorter than the present Lilloet route from the mouth of the Harrison River to the middle Fraser, especially having in view the very bad access to the upper ends of the Lilloet and Harrison Lakes at Pemberton and Douglas. I conceive, however, that a shorter way may be found which will not pass over any part of the Harrison River, and which may proceed by this Cayoosh Lake across some pass yet to be discovered, down upon a very long valley which opens upon Fraser River from the north-west, and falls upon Fraser's River about 15 miles above the Harrison, and which was noticed last January and marked in the reconnaissance then made. There are a few houses at the upper end of Lake Seton, which I suggest might be called Seton Head.

24. From Lake Seton to Lake Anderson about  $1\frac{1}{4}$  mile is practicable for a cart. There seems very little fall in the stream which runs from one lake to the other. It might probably be canalized at no great expense. A steamer could then go from the upper end of Lake Anderson to the lower end of Lake Seton without unloading. I calculated the lengths at  $13\frac{1}{2}$  to  $14\frac{1}{2}$  miles for Lake Seton, and  $12\frac{1}{2}$  to 13 miles for Lake Anderson. They are generally reckoned three miles longer each of them; but boatmen usually exaggerate, and I was as careful as I could, and reckoned both by estimation and time. A steamer would be very useful, as we found on all the lakes. On every one we found either a dead calm, or a fresh breeze blowing up or down the lake, sometimes both ways at the different ends, which greatly delays the navigation in the row boats now in use. On two lakes we had favourable winds; on two we were delayed for 24 hours by contrary winds.

25. At the upper end of Lake Anderson there is a pretty little site for a small town. The Lilloet trail properly so called commences here; it is a cartway for some little distance; it might very readily and for a few hundred dollars be made practicable for carts for some miles; indeed, at a very small expense, for the whole distance to Lake Lilloet. It generally follows the old Indian trail, which may be seen here and there swerving to the one side or the other. It only deviates in two places: close to Lake Anderson, and again a few miles before arriving at Lake Lilloet, in both instances apparently to avoid bridging streams which the Indians forded, and which could be bridged, the first for a very few score, the second for a very few hundred dollars. The deviations in each case appeared to be rather for the worse. There are many places in which a slight deviation and the removal of a few barrow loads of earth or of a tree or two would have effected a great improvement, but there the trail was followed.

The other deviation, near Lake Lilloet, leads by a shorter road over a hill to the lake.

The Indian trail proceeds down the watercourse to the river Lilloet, some few miles above the head of the lake, where there are reported to be some five or six square miles of exceedingly rich prairie land. If the road were carried by a bridge across the Homush or Xoblish River, and again across the Lilloet, it would run nearly on a level all the way from Lake Anderson, and would open out this fertile valley, and fall on the Lilloet Lake at a point much better adapted for a harbour than that selected, and which is only approachable within three-quarters of a mile when the lake is flooded. On neither side of the lake, indeed, is there any space for even a goat-path, unless it were hewn away. But on the side actually chosen (the east or left side) there is for miles from the lake no place where three houses could be placed together, the ground is so excessively rocky and irregular, and there is no natural facility for forming a harbour. On the right side of the lake there are two islands, which seem to invite a couple of spars to be laid, which is all that is necessary to form a beautiful harbour; and the country, once escape a couple of hundred yards from the lake, is capable enough of being built on. There is at present a complete monopoly thrown into the hands of the restaurateur in the only building at Pemberton.

26. Lake Lilloet is quite impracticable, I conceive, for a road along its shore. The terminus at the lower end (where there is also a restaurant) is very badly placed, and the people were about to remove it 400 or 500 yards lower down. This lake connects by a twisting rapid stream of about 1,200 yards with the little Lake Lilloet, extending six miles further. This may at some future day be canalized, so as to allow a steamer to run about 21 or 22 miles without unloading. At present the navigation of the upper lake stops above the rapids; and as a good level road may easily be made along the edge of the lake on the left shore, where the ground is flat, well wooded, and not too much underwood, not sub-



ject to overflow—in short, very well adapted for a road—not much use can perhaps at present be made of this lower or smaller lake.

27. For 20 miles further there might easily be a cart road carried down the Lilloet, which it would probably be necessary to bridge twice. Mr. Nicol conjectured that a good bridge might cost \$800 or \$1,000; but this was, of course, an estimate of the loosest description. There are some very curious hot wells about  $13\frac{1}{2}$  miles from the lower end of the Lilloet Lake. The water issues from a mass of conglomerate, six or eight feet high, and the same width, partially imbedded in the hill side. From the centre issues the hot spring, large enough to fill a trough of the area of four inches square, probably at a height of about two feet from the bottom of the rock.

On each side, out of the same mass of conglomerate, there issues a spring of cold pure water, of about the same bulk, and all three unite in a small pool, and form one stream, which falls into the Lilloet about 100 yards off. The trees in the neighbourhood are of a singular vigour and beauty; both hemlock, cedar, &c., and also maple and other deciduous trees. The water is extremely soft and agreeable to wash in; it has a slight sulphureous taste, and also is slightly chalybeate. It has a very perceptible odour, but is perfectly clear and colourless. We had no means of testing its temperature accurately, but even after some admixture of the cold springs, it is hotter than the hand can bear. I should say probably  $140^{\circ}$  F. We gave to it the name of St. Agnes' Well.

28. The last 15 or 20 miles of the trail towards Port Douglas undoubtedly present greater difficulties than all the other part of the Lilloet route; and the worst part is that immediately falling on the Harrison Lake, which at present terminates at Port Douglas.

This situation, though romantic and beautiful, and offering to vessels lying in its little lake a secure harbour during seven or eight months in the year, has such natural defects that nothing but necessity can justify its adoption or retention for a moment. For four or five months in the year, if not for a longer period, it may be said to be inaccessible either by land or water, except on foot.

It is situated at the foot of a hill; the trail ascends for upwards of an hour immediately from high-water mark; and we found the greater part of this hill encumbered with snow to such an extent (18th April), that pack mules could only make 10 miles in two days, and were nearly exhausted with that distance. In summer time the snow will not be there, but the waters will then be out; and it is to be apprehended that some parts of this trail will be less passable in June than in April. The snow, though often four and five feet deep, had begun to melt a good deal during the day, though it generally froze again at night; and the trail was in several places for 100 yards ankle deep in water; indeed, it often appeared as if the trail had been led into and along the dry bed of some watercourse by the persons who undertook to make the trail; a plan which is open to the objection that when the waters are out, and a road is most needed, the road is at its worst. This observation is not to be confined to the portion of the trail next Port Douglas; on the contrary, this part shows more frequent indications of the hand of man than any other portion of the route. At one point, however, it is particularly annoying to find that the trail is conducted up and along some rather unusually broken ground into the very centre and strength of a waterfall of considerable size, far more than sufficient to turn any ordinary mill; and although we were able to scramble round it at a considerable risk of a tumble and ankle deep in water, it is probable that neither mule nor man can pass there in June. Neither mule nor man could have stood on the trail when we were there. The waters were not out when the trail was laid out. And it is of the utmost importance that the whole locality should be carefully surveyed before the floods, and then again when they are at their height.

29. To return. Behind Port Douglas there stands this difficult hill; before it lies a frozen lake for four months in the year, and when it is thawed (it had been quite open for some time when we were there), this little lake, about 2,000 yards long by 250 to 600 wide, communicates with Harrison Lake by a tortuous, shallow, rapid stream, bearing only 12 inches water at its shallowest part (19th April). There is some flat land at the mouth, on both sides, but on the right bank liable to overflow; on the left dry; but both are liable to be frozen up, by an unimportant bar of ice, however, compared with that which obstructs Port Douglas.

It is always referred to by storekeepers and carriers as the very worst and most difficult part of the whole trail to effect a transit over the frozen inner lake. A road might easily be constructed of a mile and a half in length along the left shore of this lake to the flat in question, which, however, will never be a good site. Better, however, than the present, which, if even the narrow channel and hill be disregarded or improved, has an irremovable objection in its ice, which this plan would avoid. An application for the purchase of all this flat has been made by a man named Duncan Robertson. There has been no measurement; it may be only 20 acres, but I should think nearer 50. It is densely wooded; so is all the valley behind Port Douglas.

30. On the right bank of the Lilloet a large flat is formed, analogous to the delta at the mouth of many rivers, at present bearing a most magnificent growth of timber, principally cedar and hemlock. The soil is alluvial and decayed vegetable matter, forming a rich red mould.

One or two small streams from the mountains north-west of the Harrison Lake fall through it. It is possible that a town might be raised here. In many respects it would have great advantages. It would have an open port all winter, and a level road up the valley of the Lilloet. Whether it could be carried up that valley for four miles (where we quitted the stream), or even higher, by crossing and recrossing the stream, Mr. Nicol will probably report. We conceived that it would do for the site of a town when cleared, but the clearing would be very expensive; floods would probably, at all events, occasionally overflow the greater part of the level; and the bridging difficulties might be serious.

The Lilloet here is very violent, as is shown by the enormous bulk and quantity of drift wood with which the upper end of Harrison Lake is strewn, and which far surpass anything I have ever seen. We attempted to ascend it in hopes of arriving at some level ground which we had been assured exists at a distance of three miles from the lake, and accessible for navigation; but although the river is navigable



or canoes, we satisfied ourselves that steam navigation was impossible. There is a fall of 15 feet in the 250 yards immediately above the lake, and a tortuous channel besides.

31. Bad as any harbour must be at this end of the lake, this side (the extreme right of the river mouth) offers the best position, and, with the aid of the drift wood, a floating breakwater might be made. The only winds which are ever felt, apparently blow up and down the lake, and we found on our passage that the winds follow the shores.

32. It was surprising, with a population so unsettled, so often a great part of it at least changing, and so little habituated to the presence of law or justice, to find very few complaints; none of violent crimes.

It was alleged that liquor was sold unscrupulously to Indians. Some cases of alleged breach of contract, which the defendants maintained to be mistaken contracts, were brought forward; and it was also given us to understand that those who brought such circumstances to our notice were amongst the most audacious infringers of the law when the officers of the law were absent. It is, of course, impossible ever to do sudden justice under any written system of laws, and our efforts were not always successful in endeavouring to obtain in any way immediate satisfaction. But in a political point of view these individual mischiefs were lost sight of, when it appeared that there was on all sides a submission to authority, a recognition of the right, which looking to the mixed nature of the population and the very large predominance of the Californian element, I confess I had not expected to meet. On the banks of the Lilloet there are very remunerative diggings, which I mention (though well known already) in order to make the remark that the gold in British Columbia is not all brought down by the Fraser, nor is the source of the gold confined to one region only in the canoe country or elsewhere. The upper Lilloet valley is separated from the Fraser by mountains in such a way as to exclude the idea that its course is through the primeval bed of some lake into which the ancient Fraser emptied all these treasures; or if not the result would be the same, since the lake must have included half the colony at least.

The landing and embarking at Port Douglas appears to be extremely inconvenient. A great part of the town apparently will in June be standing in the water, and so far it will be convenient that barges should come alongside of the stores; but goods will have to be moved in boats. And I should think it must be very unhealthy. It is by far the most active, stirring looking place we saw, nearly as large as Fort Yale.

33. The shores of Lake Harrison are in general steep to the water, and inaccessible for roads. There are some important breaks on the left shore leading, as is believed, to the Cayoosh Lake. Another near the foot is reported by the Indians to lead in three days to the forks of Thompson's River. But the rapids between the lake and Fraser River offer a very serious obstacle to the navigation here, and it may be that a short portage across from Fraser River into Harrison Lake may be found advisable, from a point above the mouth of Harrison River into the lake near the hot spring, which we did not visit, but named St. Alice's Well.

The distance from the lake to Fraser River I estimated at  $11\frac{1}{2}$  or 12 miles. The greater part of this is navigable for vessels of considerable draught. There is a shoal all along the exit from the lake, bearing five to six feet in its shallowest part. About half way down to the Fraser a considerable river comes in on the right bank, flowing from the reverse of the mountains or rather hills which lie west of Harrison Lake. This seems to change the nature of the current; however, from whatever cause, I never saw a river bed present a similar appearance. The shores being flat and liable to overflow, the river proper occupies a bed of some mile or mile and a half in width, extremely irregular in depth, gravelly, sometimes nine feet deep, and at a boat's length down the stream not nine inches. The boatmen allege that this is caused by the salmon digging with their snouts. Giving the greatest credit to the fish and fishers for their industry and love of the marvellous, I thought it much more nearly resembled the effect of the "ripple-mark" observed in sands at low tide, and also in dry sands exposed to steady winds. But I never saw the appearance on such an enormous scale; in the summer, when the waters are high, stern wheelers can pass. But it must take a vast increase in the body of the water, and equivalent to a great many inches rise in the Fraser itself, to raise the surface of this part of Harrison River by a single inch, being very rapid and of the breadth I have mentioned.

The remainder of my route is so well known to your Excellency, that I shall gladly bring this extremely lengthy communication to a close.

34. The chief points which struck me, to make a brief re-capitulation, were:—

1st. The ready submission of a foreign population to the declaration of the will of the executive, when expressed clearly and discreetly, however contrary to their wishes.

2ndly. The great preponderance of the California or Californized element of the population, and the paucity of British subjects.

3rdly. The great riches, both auriferous and agricultural, of the country.

4thly. The great want of some fixity of tenure for agricultural purposes.

And 5thly. The absence of all means of communication, except by foaming torrents in canoes or over goat tracks on foot, which renders all productions of the country, except such as, like gold, can be carried with great ease in small weight and compass, practically valueless.

His Excellency Governor Douglas, C.B.  
&c. &c. &c.

I have, &c.  
(Signed) MATT. B. BEGBIE.

DISTANCES.

	Miles.	Days' Journey.	
Fort Yale to—			
Spuzzem - - - - -	—	1	Much snow; regained the river after 4 miles.
Quayome (Boston Bar) - - - - -	—	1½	
Lytton (Fort Dallas) Thompson Forks - - - - -	—	2½	
Foster's Bar - - - - -	—	1½	
Fountains - - - - -	—	1	
Cayoosh - - - - -	—	½	This is half a day including the starting, unloading, &c., and ferry. It is a perfectly clear meadow.
Seton Foot - - - - -	—	—	
Seton Head :—Length of Lake Seton to Lake Anderson- - - - -	1¼	—	The boatmen say 18 miles.
Anderson :—Length of Lake Anderson - - - - -	—	—	The boatmen say 16 miles.
Pemberton (on Lake Lilloet) - - - - -	24¾	2	There is a good half-way house.
Lake Lilloet :—Length of Upper Lake - - - - -	—	—	
Hot springs, including Lower Lake, 6 miles long - - - - -	13½	1	
Port Douglas - - - - -	21	2	Another extra day for mules. Four days from Lake Lilloet to Port Douglas.
Lower end Harrison Lake - - - - -	—	—	
Harrison River (from Lake to Fraser) - - - - -	12	{ 14½ hrs.	From Port Douglas. Fore winds and down stream.

On foot the whole way, except on the lakes and below Harrison Lake. The distances are estimated partly by adding the different distances guessed at as we came along the trail; some by time and estimated rate of speed. We generally walked 7 or 8 hours besides stoppages, sometimes 10 hours.

No. 15.

No. 15.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Government House, Victoria, Vancouver's Island,  
July 1, 1859.

(Received August 26, 1859.)

(No. 175.)  
SIR,

I HAVE duly received your Despatch No. 32,\* of the 15th March, in reference to the admission of barristers and attorneys to the Court of British Columbia.

2. The liberal measure of allowing foreign counsel to practise in the Court of British Columbia has been attended fortunately by no evil effects, no foreigners having either practised in the Court or otherwise derived any advantage whatever from the concession, one cause for which may be assigned to the fact that the country has enjoyed a singular degree of quiet, and almost an exemption from troublesome litigation.

3. The privilege granted by the order of Court in favour of attorneys and solicitors of the Supreme Court of the United States expired yesterday, and will not be renewed, as numbers of English lawyers have arrived, who purpose residing here permanently and practising both in the Courts of British Columbia and Vancouver's Island.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.

\* Vide papers presented August 1859, page 81.



BRITISH  
COLUMBIA.

No. 16.

No. 16.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 182.)

Victoria, Vancouver's Island, July 2, 1859.

(Received August 26, 1859.)

(Answered, No. 24, September 23, 1859, page 102.)

SIR,

I HAVE had the honour of receiving your Despatch No. 48,\* of the 11th April last, having reference to the disturbances which occurred in January last at Fort Yale, and forwarding for my information the copy of a letter from Lord Naas, with an inclosure from the Chief Inspector of the Constabulary in Ireland relative to the request made for a body of the Irish Constabulary to be sent to British Columbia, and representing the necessity for further information upon various points of detail mentioned.

2. I have given immediate attention to that matter, and have the honour to forward herewith a statement which will supply the information required.

3. With reference to your remarks respecting the inability of Her Majesty's Government to undertake the expense, partially or otherwise, which the proposed police force would entail, I have only to observe that in such case it will be advisable not to send out the force, as it is impossible to raise money in the colony at present to meet the expenditure that would thereby be incurred; and, moreover, the military force now in British Columbia and the gradual accession of a British population render the step every day less a measure of necessary safety.

4. The population of British Columbia would, as you correctly surmise, zealously come forward if required for their own protection; but it has always appeared to me a most dangerous policy to put the sword into the hands of aliens who have no love for British institutions, and who might turn it against the Government whenever it suited their purpose. The geographical position of British Columbia must be remembered, and it also must not be forgotten that until lately British subjects formed but a small portion of the multitudes that poured into the country; and although I firmly believe that among the thousands of persons who have since departed from the colony scarcely one British subject could be found, still even in the population that remain the proportion of British subjects is far from being in the ascendant. The difficulties attendant upon the employment of a volunteer force upon occasions of emergency are consequently great; but, apart from other considerations, there is one very grave objection which particularly presents itself. In a gold-producing country men cannot and will not render their services to the Government gratuitously, and the amount of recompence they expect is exorbitant. Upon the occasion of the disturbances at Fort Yale certain volunteers were employed by Colonel Moody. These men cheerfully and most zealously afforded their services, so much so, indeed, as to call forth a warm letter of commendation from Colonel Moody; but they demanded 5 dollars a day for their services and as compensation for their loss of time, and under the circumstances I was compelled to meet the demand. I am strongly inclined to believe that, as a measure of wise policy and of sound economy, it is beyond doubt advisable to employ none but British subjects in protecting British territory.

5. I have read with due attention your remarks respecting the provision to be made for the repayment by the colony of the advances made from the mother country for the equipment and conveyance to British Columbia of Colonel Moody's party of Royal Engineers. The colony is most anxious to acquit herself of every obligation conferred upon her, and she is quite capable of meeting all her civil expenditure in a befitting and proper manner, but the cost of the maintenance of the military force, with the heavy charge for colonial pay, is at present more than her finances can bear. The development of the country has been stayed for want of funds, and the amount of revenue has in consequence fallen far short of my expectations. I cannot refrain from remarking, however, that the expense of sending the Royal Engineers to British Columbia is a charge than can scarcely with perfect justness be assigned to the colony, seeing that after all the object in view was one purely of an Imperial character. But be that as it may, Her Majesty's Government must be lenient and kind, and must, until the colony is in a condition to discharge her liabilities, look for repayment in the acquisition of a magnificent domain, which will give an expansion to British trade and influence in this part of the world that now can be sufficiently appreciated, and which was unattainable by other means.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c. &c. &c.(Signed) JAMES DOUGLAS,  
Governor.\* Vide papers  
presented  
August 1859,  
page 82.

1 Enclosure.

Enclosure in No. 16.

ANSWERS to the QUESTIONS proposed by the Inspector General of the Irish Constabulary, dated March 15, 1859, and forwarded in Lord Naas letter of the 21st March, relative to sending out part of that force to British Columbia. Encl. in No. 16.

1. What number of men of each rank, Head Constables, Constables, and Sub-Constables, would be required?

None of the superior ranks would be required, as there are in the Colony many applicants for employment of such capacity, officers who have served in the army, &c. The following establishment is proposed, of which the constables and the sub-constables only need be sent out:—

- 2 Sub-Inspectors.
- 6 Head Constables.
- 25 Constables Serjeant.
- 117 Sub-Constables or Privates.

2. Would the men be required to engage for a particular period of service, for an unlimited period, or upon what other conditions in that respect?

For six years.

3. Upon what conditions would they be engaged in regard to retiring allowance or pension, and would past service in the Constabulary at home be recognized and allowed for?

No retiring allowance or pension could be accorded by the Colony, but a free grant of six acres

of land after six years' faithful service in the Colony would be made to them by the Colony.

4. Would married men, or what portion of them, be accepted?

Married men would be preferred.

5. Any limit as to age?

From 21 to 35 years of age.

6. Presuming that the men themselves would have a free passage, would this provision extend to wives or to families in the case of married men, should such be accepted?

It would be desirable that a free passage should be given to the wives and families of the men.

7. Relative to pay.

The following is the rate of pay proposed:—

Head Constables or Serjeant Major, ten shillings per diem.

Constable or Serjeant, nine shillings per diem.

Sub-Constable or Private, eight shillings per diem.

They would be required to feed themselves, but would be provided with lodging, and one suit of clothing annually.

JAMES DOUGLAS.

No. 17.

No. 17.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 183.)

Victoria, Vancouver's Island, July 2, 1859.

(Received August 26, 1859.)

SIR,

I HAVE duly received your Despatch of the 12th April last, No. 50,\* in reply to my proposal to purchase or build a steam vessel intended for the transport of troops and Government stores in Fraser's River, and as a means of restraining the refractory and of enforcing law and order among the population of the mining districts.

\* Vide papers  
Presented  
August 1859,  
page 85.

2. I observe that Her Majesty's Government, without doubting the judiciousness of the plan for local interests, decline giving it their countenance or support. I rejoice, therefore, that circumstances subsequent to the date of my Despatch induced me to defer the execution of the project until I received your reply. I will now abandon it altogether, or until such time as the colony may be in a condition to defray the cost from her own resources.

3. You again call my attention to the circumstance of the liability to the mother country which the infant colony of British Columbia has incurred in the earliest step taken by the Home Government for her establishment and protection. Her Majesty's Government may rest assured that, when the colony can do so, the obligation will be faithfully repaid. She can only attain to that condition when her resources are more fully developed, and it is undeniable that her development has been retarded, and my hands have been tied through the want of funds to undertake and carry out important and indispensable public works. The assistance of a Parliamentary grant would have enabled me months ago to have adopted such measures as to settle and retain a large population in the country, and to hold out inducements to British subjects to flock to this desirable land. Upon the first intimation of the discoveries of gold thousands poured into the country, and spread abroad throughout its length and breadth, without a thought, and apparently without a care, as to how a land hitherto wild and uninhabited, except by the native Indian, was to provide them with the means of subsistence. Gold was found,

III.



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COLUMBIA.

and in quantities beyond the usual yield in the neighbouring and older gold districts of California. So long as his scanty stock of provisions lasted, the adventurous miner was content; but when the winter approached, and the rugged mountain passes no longer afforded the means for introducing further supplies, he was exposed to privation and hardships of no ordinary description. Numerous were the departures from the country in consequence, and those leaving did not fail to exaggerate their ills and to spread abroad reports most unfavourable to the country. This might naturally have been expected to some extent, under any circumstances or condition of the country; for, the wildest notions being entertained of the facilities which existed for acquiring instant wealth, disgust and ill-feeling soon followed the non-realization of extravagant expectations; but had the means been at my command, much might have been avoided. I used the most strenuous efforts to facilitate the introduction of supplies, but my resources were limited, and I could only partially open one route, although 15,000*l.* from the revenues of the colony were expended in the object. The difficulties to be overcome in opening out the country of British Columbia are of no ordinary character, and the expense attending all works of labour is enormous; but I do not despair of the benefits resulting in time repaying the outlay. In another Despatch of this date I have mentioned that the colony can and will support in a befitting manner all her civil staff, large as that staff is, in consequence of the extensive nature of the country and the scattered condition of the inhabitants; but the cost of the military establishment is a charge that she cannot at present find the means to meet, for it alone would more than absorb the entire revenue of the colony; and, therefore, for the present, we must earnestly hope that the mother country will be kind and generous, and will not refuse her aid to this her youngest, but not least valuable colony; for the day will undoubtedly come, and may not be far distant, when the possessions of Great Britain in this part of the world will exercise no insignificant or unimportant influence on the fast-spreading interests in the Pacific Ocean of other great nations.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

No. 18.

No. 18.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Government House, Victoria, Vancouver's Island,  
July 4, 1859.

(Received August 26, 1859.)

(No. 185.)  
SIR,

THE latest intelligence received from Mr. Sanders, the Assistant Gold Commissioner for the district of Fort Yale, is very interesting and of a cheering character.

2. That gentleman in his last report, dated the 28th June, states that accounts from Prince Albert's Flat continue to be favourable, and the miners who have taken up claims there assure him that the Pay Streak yields 5 cents to the pan, which they consider a fair return for their labour; and Mr. Sanders is of opinion that the Flat, which is of great extent, will afford profitable employment to hundreds of miners for years to come.

3. A mining bar, about seven miles above Yale, commonly known as Sailors Bar, which is occupied by a person named Mead and another, who are the sole grantees of two springs yielding sufficient water to supply three sluice meads, are making, according to their own statement, 50 dollars to the man a day. In consequence of the small supply of water on this extensive bar it is unavoidably monopolized by these two men, and will afford them employment at the same rate of remuneration for many years to come.

4. Some Chinese miners have settled on an elevated bank on Fraser's River beyond Spuzzem, and as there is no water on the spot, and their own small means are insufficient to bring in an artificial supply from the neighbouring mountains, they convey the soil for washing in wheelbarrows to the river's edge, a fact which goes far to prove the extreme richness of the deposit.

5. These elevated banks have long been known to be rich, but there being on many of them no natural supply of water, it will require a considerable capital to bring in supplies of that indispensable element.

6. The ditch on Emory's Bar has been moved back, in order to facilitate the working of the bank, which has, however, not proved so productive as expected.

7. The miners on Hill's Bar are sinking shafts in the mountains, in rear of the bar; but when Mr. Sanders last visited the spot, on the 21st June, they had not attained to a sufficient depth to determine the value of the auriferous soil with any degree of positiveness; the miners were, however, quite satisfied from the indications of the beds of earth that their endeavours were likely to prove successful.

8. Mr. Sanders laments the great loss of gold arising from careless working and the want of proper means to retain the "rusty gold," and remarks that one-half at least of the fine gold escapes on the surface of the water used in washing, nor will "rusty gold" amalgamate with quicksilver, and he states, in proof of the superficial, ineffective manner in which the diggings are worked, that an experienced and well-informed ditch-owner assured him that he would have no hesitation in undertaking to work over again those parts of Hill's Bar which are supposed to be exhausted, with a certainty of realizing from 6 dollars to 8 dollars a day for each man employed. Yet, on this bar many miners have taken out of a 25-foot claim as much as 6,000 and 7,000 dollars, exclusive of cost of labour, water, and subsistence.

9. The miners are full of confidence in the resources of the country, and are looking forward to great discoveries in British Columbia. They seem to think that parties should be organized to prospect the interior, and good miners have offered their services for that object, on condition of being furnished with food and rewarded, in the event of success, with grants of mineral land or a quartz-lead claim.

10. Mr. Sanders further reports that the accounts from the upper districts of Fraser's River are most encouraging, rich alluvial diggings having been found in the neighbourhood of Fort Alexandria, and extensive and rich dry diggings near Lytton.

11. Mr. Sanders had also been informed that silver has been discovered to the eastward of Sailors Bar, and he promises to procure and forward specimens next week. It is also reported that quicksilver had been discovered, but the Commissioner thought it not impossible that the discoverer had mistaken red sandstone for "cinnabar," the mineral which contains quicksilver.

12. Mr. Sanders' report contains nothing further of importance.

13. The opening of roads through the mountainous districts of British Columbia into the interior is now the object which has the strongest claim upon our attention. A party of Royal Engineers are now employed in making the road from Fort Hope to Boston Bar, and a detachment of Royal Engineers and Royal Marines, exceeding 100 men, are employed in widening and improving the Harrison Lilloet Road.

14. The transport by that road into the interior is already very great. About 100 pack mules leave Douglas weekly with freight for Bridge River. From returns made up at Douglas it appears that 3,600 tons of provisions have been carried over that road since it was first opened, in the month of November last. The rate of freight by that route rose at one time last winter to 37 cents a pound, a state of things induced by the want of competition and by the severity of the weather, but it is now reduced to 10 cents a pound all through from Douglas to Bridge River, and from this place (Victoria) to Douglas  $1\frac{1}{2}$  cents, making the whole expense of freight from this place to Bridge River, a distance of 316 miles of inland transport,  $11\frac{1}{2}$  cents a pound, which is reasonable compared with what the charge once was, though still susceptible of reduction.

15. The regular settlement of the country by a class of industrious cultivators is an object of the utmost importance to the colony, which is at present dependent for every necessary of life, even to the food of the people, on importation from abroad.

16. It is thus drained of its wealth, and its progress retarded; evils which must exercise a depressing influence on the country at large until it possesses a fixed population and produce of its own.

17. The mining population are proverbially migratory and unsettled in their habits, seldom engaging in any other than their own absorbing pursuits; and, therefore, it is he who tills the soil—the industrious farmer—who must clear the forest, bring the land into cultivation, and build up the permanent interests and prosperity of the colony.

18. We are for that reason most anxious to encourage the actual settlement of the country, and that the process should commence on the sea coast, and spread from thence, as much as possible, continuously along the course of the great rivers into the interior.

19. There are considerable tracts of level land and some prairie land on Fraser's River. The country on Harrison's River and Lake is less favourable for settlement, the lake, about 35 miles in length, being on all sides bounded to the water's edge by precipitous



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mountains, and not comprising, I believe, throughout its whole extent, 500 acres of land fit for cultivation. The valley of Harrison's River does contain some level land, but the quality of the soil is arid and stony.

20. Nothing, however, can surpass the imposing beauty of the mountain masses and deafening cataracts of those two districts, the admiration of every lover of the sublime and picturesque in scenery.

21. They are, moreover, not without value in other respects, possessing as they eminently do, in boundless extent, pine forests of the largest growth and finest quality, with an almost unlimited amount of water power, readily applicable for propelling machinery at the smallest expense.

22. With the further advantage of a safe water communication to the sea, the inhabitants of those districts will doubtless turn their attention to the export of spars and deals, which can be rafted at little cost to Queensborough, and thence shipped to all parts of the world, a trade that must eventually become a great source of wealth to the country.

23. The geological phenomena observed on the banks of Harrison's River favour the belief that the district is auriferous, and this opinion receives corroboration from the fact that a party of French miners have worked the gravel beds of that river with a marked degree of success, their joint earnings having averaged about 7 dollars a day to the man, and they are now making earnest preparations for renewing the operation as soon as the river abates.

24. The present white population of Douglas is about 150 souls. I was much pleased with their conduct when recently on a visit to that place; they came forward in the most liberal manner, after an address from me on the subject, to tender a subscription of about 300 dollars, and the offer of an assessment of 10 per cent, on the value of their property, in aid of the road to Bridge River. I thanked them for the support thus tendered, and promised to make honourable mention of their act to Her Majesty's Government.

25. A water power sawmill of great capacity, with a planing and grooving machine attached, has been lately erected on one of the mountain streams that sweep through the town of Douglas, and I have no doubt that the enterprise of Mr. McDonald, the spirited proprietor, will meet with a rich reward.

26. Colonel Moody is making great efforts to bring surveying parties rapidly into the field, but the survey of the site of Queensborough, and other necessary work, has led to unavoidable delays, and no country land has as yet been brought into market. There is much popular clamour on that account, and should the pressure for land be great, I think it will be advisable to meet the emergency by establishing some temporary system of occupation, which would enable settlers to hold and improve certain specified tracts of land under a pre-emption right until the surveys are completed, when it might cease to be in force.

27. The declared value of imports into British Columbia for the quarter ending the 30th June amounts to 247,755 dollars 66 cents, and the revenue derived from customs duties for the same period amounts to 4,138*l.* 16*s.*

28. There is some excitement at present about the gold diggings of Queen Charlotte Island, and application has been made to me for aid and protection on the part of the Government.

29. If a party of sufficient strength for self-protection can be united for the purpose of exploring that island, and developing its mineral and auriferous resources (which I believe to be valuable), and thus form the nucleus of a settlement. I will at once enter into communication with the senior naval officer present, requesting him, if possible, to detach one of Her Majesty's ships now here to accompany and give the party such aid and assistance as may be requisite on their first landing, and to remain near them until they can construct works for their protection against the natives, who are numerous and troublesome.

30. I have only further to report the general tranquillity and welfare of the colony. The numbers of the "Victoria Gazette" mentioned on the margin are herewith enclosed.

I have, &c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

June 9 to  
July 9.

BRITISH  
COLUMBIA.  
No. 19.

No. 19.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 189.)

Victoria, Vancouver's Island, July 6, 1859.  
(Received August 26, 1859.)

(Answered, No. 15, September 5, 1859, page 100.)

SIR,

I HAVE the honour to forward to you herewith for your approval and confirmation a return of the provisional appointments I have made to offices, which there was an absolute necessity for establishing in British Columbia, between the 1st January and 30th June 1859.

Enclosure.

The Right Hon. Sir E. B. Lytton, Bart., M.P. I have, &c.  
&c. &c. &c. (Signed) JAMES DOUGLAS,  
Governor.

Enclosure in No. 19.

Encl. in No. 19

A RETURN of Provisional Appointments made by the Governor of British Columbia, between the 1st January and 30th June 1859, and now submitted for Approval and Confirmation.

Date of Appointment.	To what Office.	Name.	Rate of Salaries per Annum.	Where stationed.	Date of Letter of Introduction from Colonial Office.
1859. 19 April -	Stipendiary Magistrate and Justice of the Peace	Warner Reeve Spald- ing.	300	Queensboro'	21 Oct. 1858.
"	Ditto - - - -	Peter O'Reilly -	250	Langley -	Dec. 3 1858.
1 March -	High Sheriff - - -	Charles S. Nicol -	250	Port Dougla.	—
8 June -	Stipendiary Magistrate and Justice of the Peace.	Thomas Elwyn -	250	Lilloett.	—
" -	Ditto - - - -	Henry Maynard Ball	250	Lytton -	8 Mar. 1859.
1 April -	Assistant Gold Commis- sioner.	Edward Howard San- ders.	350	Fort Yale -	11 Nov. 1858.
19 April -	Chief Clerk in the Colonial Secretary's Office.	Charles Good -	350	—	—
7 March -	Chief Clerk in the Treas- ury.	John Cooper -	300	—	—
23 May -	Clerk in the Custom House	William Hutton McCrea.	200	—	—
8 February -	Registrar of the Supreme Court.	Arthur T. Bushby -	250	—	—
8 April -	Revenue Officer - -	Charles Wyld -	200	Langley -	3 Dec. 1858.

(Signed) JAMES DOUGLAS.

No. 20.

No. 20.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 194.)

Government House, Victoria, Vancouver's Island,  
July 23, 1859.

(Received September 7, 1859.)

SIR,

I HAVE the honour to acknowledge your Despatch No. 63,\* of the 11th May, transmitting for my information and guidance, copies of a correspondence with the Admiralty and other Departments of State, relative to the erection of lighthouses on

\* Vide papers  
presented  
August 1859,  
page 87.



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certain of the salient points of the Straits of Fuca and the approaches to Esquimalt harbour, and I feel highly gratified by the intelligence conveyed in your Despatch of the intention of Her Majesty's Government to advance the sum of 7,000*l.* for the construction of those important works, on the condition that one moiety of it shall be repaid by the Colonies of Vancouver's Island and British Columbia jointly, and measures will accordingly be adopted for that purpose.

2. I observe that you have requested the Board of Trade immediately to send out the lanterns and light apparatus, and that the Lords Commissioners of the Admiralty have been requested to instruct the naval officers stationed here to give me every assistance to facilitate the work.

4. I depend greatly on Captain Richards, R.N., for the selection of the proper sites, and with him I will associate a Committee of Naval Officers and experienced Ship Masters, so that the choice may be made with due care and discrimination.

5. You may also rest assured that no time will be lost in carrying into effect an undertaking which promises to be so highly conducive to the commercial progress of the country.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c.                      &c.                      &c.

(Signed) JAMES DOUGLAS,  
Governor.

No. 21.

No. 21.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 201.)

Victoria, Vancouver's Island, August 16, 1859.

(Received October 10, 1859.)

(Answered, No. 30, October 20, 1859, page 104.)

SIR,

Enclosure.

1. I HAVE the honour of transmitting for your information the report of an over-land journey of survey in the districts of British Columbia, bordering on the Thompson, Fraser, and Harrison Rivers, undertaken at my request by Captain Richards of Her Majesty's Ship "Plumper," and conducted by Lieutenant Richard Mayne of that ship, who has performed the service on which he was detached with a degree of success and ability creditable alike to the talents and enterprise of that useful and active officer.

2. The report contains much interesting topographical information, and is accompanied by a valuable explanatory map of the countries described.

3. I would submit how desirable it would be to have this map lithographed in England, and distributed there, and a few sets sent out for sale and distribution in the Colony.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P.  
&c.                      &c.                      &c.

(Signed) JAMES DOUGLAS,  
Governor.

Encl. 1 in  
No. 21.

Enclosure 1 in No. 21.

H.M. Ship "Plumper," Esquimalt, Vancouver Island,  
July 7, 1859.

SIR,

I HAVE the honour to forward, in compliance with orders from Captain Richards, R.N., a copy of my sketch of part of British Columbia, and my report on the same; also a box of geological specimens collected by Dr. Campbell.

I have, &amp;c.

His Excellency J. Douglas, Esq., C.B.,  
Governor, &c.

(Signed) RICHD. C. MAYNE, Lieutenant.

Sub-Enclosure in No. 21.

H.M.S. "Plumper," Esquimalt, Vancouver Island,  
July 7, 1859.BRITISH  
COLUMBIA.Sub-Encl. in  
No. 21.

SIR,

I HAVE the honour to report that in pursuance of your orders after leaving H.M. Ship under your command I proceeded to Langley, and taking the first steamer to Fort Hope, reached that place on the 23rd of April.

I left Fort Hope on the 29th, and reached Fort Yale on the same evening.

The part of the Fraser River between Forts Hope and Yale is so well known that I need not speak of it, except perhaps to say that several rocks must be removed before it can be made reasonably safe for steam navigation, and that I feel sure, both from the geographical position of Fort Yale, and the nature of the country between it and Lytton, it will be many years before it would be remunerative to do that.

We left Yale on May 2nd, and followed the river trail to Lytton, which we reached on the 7th.

The distance by trail from Yale to Lytton is about 60 miles, and the ground over which the trail passes is the roughest on which I have ever travelled, the greater part of it being over sharp pointed rocks or granite boulders. Some of the ascents in the Great Cañon, which is 6 miles long are from 30° to 36° and nearly perpendicular over the water. The current in the narrowest parts I estimated at 15 or 16 knots an hour. During the whole summer this part of the river is impassable for boats going up, and though some few people have come down it in safety, a great many have perished in the attempt.

There is hardly any land fit for cultivation between Lytton and Yale. There is a small flat at Spuzzum, and several above Boston Bar, but they only average 200 or 300 yards long by 50 or 60 wide, and are almost all thickly timbered, and covered with granite boulders. The largest one is about 9 miles below Lytton and is fenced in, I believe by an American, though no one is living there now. It is about 1,000 yards long by 400 yards wide, well covered with grass, but very sandy soil.

From Yale to Boston Bar, the vegetation is limited to pine trees and a few alders, wild onions and vetches growing among the rocks. Above Boston Bar it improves, and on the flats before mentioned there are currants, cherries, gooseberries, and Oregon grapes in considerable quantities, and willows and maple in addition to the pine and alder.

About 2 miles above Boston Bar we found a bed of fine clay slate, running in an easterly direction; dip ranging from 5° to 40°, strike about 25°; and about 3 miles further on we come to a bed of limestone, the only one we saw between Yale and Lytton. The surface was very small. With the exception of these two beds, and a very small surface of clay slate, close to Spuzzum, we saw nothing but granite, both in the mountains and in boulders of every shape and size, some at Wellington Bar being 10 or 15 tons weight.

There is a ferry at Spuzzum, and another at Boston Bar. The former it is not necessary to cross travelling on foot, but the latter must be crossed to get to Lytton.

There are several "restaurants" along the road (every place where anything can be got to eat is called a restaurant in this country), where tea, coffee, bread, bacon, and beans can be got, as well as a plank to sleep on, and these places are at such distances apart that no man possessed of any money need sleep out.

At Chapman's and Boston Bars there are large stores belonging to the express men, Messrs. Wells, Fargo, and Co., and Ballou.

The mule trail leaves the river at Yale and meets it at Spuzzum, crosses it there, and again leaves it until reaching Lytton. It was blocked up by snow when I went up.

Lytton is at the Forks of the Thompson and Fraser rivers, on the south bank of the former, and west of the latter, and is composed of 8 or 10 stores, and a Government house. The site of the town is nearly 300 feet above the river, on the upper of two benches, the lower of which is about 200 feet above the water. The bank on the opposite side of the Fraser is in three benches, the highest being about 600 feet, and the river is 576 feet wide at this season. The opposite bank of the Thompson is about the same height as Lytton. The Thompson River is about 150 yards wide at its mouth, and there is a horse ferry across it for trains going to the Fountain, &c., &c. It is always blowing hard from north or south, the latter wind prevailing in summer, and the clouds of dust which continually sweep across the flat make it anything but a desirable spot for a residence.

We left Lytton for Kamloops, a post of the Hudson's Bay Company on the Thompson River on the afternoon of the 9th of May, and followed the south bank of that river for 9 or 10 miles, when we ascended a steep hill for about 1½ miles, and came to a valley extending about 10 miles to the eastward, well covered with grass, and hemmed in by hills 700 or 800 feet high. From this point the aspect of the country became much more promising than the valley of the Fraser. After traversing the whole length of this valley, we went down upon the Nicola River, and fording it, followed its left bank till we came to the Nicola Lake.

The Nicola River is far prettier than any others I have seen in the country. It is very rapid and full of small islands and sand banks, and winds along in reaches of about half a mile long. At each bend there is a flat of 5 or 6 acres of clear grass land which would be very valuable were they not constantly flooded in summer; in some places the banks are high enough to prevent this, but generally the soil does not appear to be so good as where the banks are low, and the rise of the river is so different in different years that it would require a residence of several summers to know which are flooded and which are not. Another great drawback to agriculture is a deposit of nitrate of soda, which though we first noticed it here appears, more or less, through all the country. Mr. McLean, the officer of the Hudson's Bay Company in charge of Fort Kamloops, told me that where it is in large quantities it destroys wheat, but that it has very little effect on vegetables.

Behind the flats the mountains rise from 500 to 1,000 feet, but though some are bluffs of trap and sandstone, far the greater number are covered with grass nearly to their summits.

The banks of the Nicola are for the most part of clay, nearly perpendicular, and averaging about 20 feet high, but in some places they are 150 feet, and in others only a few inches above the water, even at this season, and lined with poplars and willows. The bed of the Nicola is much higher than that of the Thompson, there being about 1,100 feet difference between the places, where I left the latter and joined the former.



BRITISH  
COLUMBIA.

About 15 miles before coming to the Nicola lake, there is a valley extending to the northward 5 or 6 miles wide. It is not quite level, but the soil appears good, though like all this country, too sandy for an Englishman's notion of rich land. It is well covered with grass, and there are not more than 10 or 15 trees to an acre. The hills bounding it are from 700 to 1,000 feet high. Indians say there is a lake in it running nearly parallel with Nicola lake.

The Nicola or Smūhāatlon Lake lies nearly north and south, and is about 14 miles long by 1 to 2 wide. The banks are low and covered with grass on both sides. There is not much good land on the west side, but on the east there are two large valleys with apparently good land in them, down which run the Rivers Bodimon and McDonald. Granite here for a time superseded the sandstone and trap; and at the north end of the lake, on the west side, there are some very steep cliffs of it.

After passing the Nicola Lake we went along a good piece of prairie by the side of a chain of small lakes or ponds, which continues till it joins the Thompson nearly opposite Kamloops. Stump Lake or Lake Hāmēä, as it is called by the Indians, is the largest of this chain, and is about 6 miles long by 1 to 1½ wide. After passing this, which is about 5 miles above Nicola Lake, we ascended Mount Sk̄yētākēn, at the top of which we were, by the barometer, 3,600 feet above the level of the sea. This was the greatest height attained during our tour. The view from this mountain was very fine, extending as far as the Semilkamen Valley and Little Okanagan Lake, and showing a very large tract of grazing if not farming country. After crossing Sk̄yētākēn, we passed a succession of low grassy hills and descended to the Thompson River opposite Fort Kamloops, and crossing the river in a canoe reached the Fort about 10 o'clock a.m. on the 14th of May.

Fort Kamloops is situated at the Forks of the Thompson and North Rivers, on the north bank of the former, and the west bank of the latter, and is one of the prettiest sites in the country. It is at the east end of prairie about 10 miles long by 1 to 2 miles wide, which would be very valuable land were it not so low that it is always flooded in the summer. The year before last the Fort itself was flooded so much, that it had to be abandoned until the water fell.

The Thompson was about 300 yards wide at Kamloops, when I was there, and the North River 320 yards. There is nothing of the rushing current here, that there is in every other river we met, and in this river also lower down, and the contrast is so great as to give quite a sluggish appearance to the river, which quietly winds along about 3 knots an hour, though of course it must be much more in midsummer.

Mr. McLean considers the soil here good, though not so good as at the head waters of the Thompson, about 22 miles east of this, or in the Semilkamen Valley, which he considers the best place in the colony for an agricultural settlement. The land about Fort Alexandria, where he resided for several years, he also considers better than this, though more subject to frost. But I believe it is a great, though common error to suppose that crops are destroyed nearly every year by frost; at places even further north than Alexandria, once in 4 or 5 years being a fair average. Great quantities of potatoes are grown at the head of both Thompson and North Rivers, by the Indians, but nothing else has been tried. At Kamloops vegetables of all kinds thrive very well. A bushel of wheat there yields on an average 15 bushels; Mr. McLean says that at Alexandria he has known it yield 40.

There is considerable trade now carried on across the American frontier, and through Kamloops to the Fraser, and to the small rivers branching off from the Thompson, on nearly all of which, there are or have been miners working. A great quantity of spirits, and other things were smuggled into the country, this way last year.

Gold has been found in the Rivers Tranquille, Défait, Nicola, and Nicaomen, and silver in the latter, by Mr. McLean, and I believe he sent the first gold that was found in British Columbia from the last-named river. He assured me, also, that he had seen *copper* obtained by the Indians from a mine on the north bank of the Shuswap Lake, so pure, that they made arrow heads, pipe stems, &c., of it.

There is a trail from this to Fort Hope, which is always used by the servants of the Hudson's Bay Company for transporting their goods to and from the northern parts. It is, however, dangerous in some parts, and a number of horses are lost each time the fur brigade comes down. There is a bad swamp 7 or 8 miles long, and a steep mountain (Manson's Mountain), both of which they have to cross. It takes them 10 or 15 days to go from Kamloops to Hope, but I am told that travelling without luggage it could be done in 3 or 4 days. A man has gone from Kamloops to Langley in 5 days.

The Indians all over the country suffered fearfully from want of food last winter, a great many dying of starvation. I believe, it was owing, in a great measure, to their improvidence, most of them leaving off the fishing, hunting, &c. last summer in the general mania for gold digging, and making no provision for the winter. This state of things accounts for number of thefts perpetrated on miners, and others by them; their only choice in most cases being to steal or die. I think they can hardly be wondered at for preferring the former.

We left Kamloops for the Pavillon, on the 17th May, and rode along the north bank of the Shuswap Lake, as far as Tranquille River, after fording which we ascended a steep hill to the northward, and opened about 3 miles of very nice grass land, and then coming down again followed the lake to the copper mine, at the foot of which we camped. It is in a bank of about 800 feet high that the copper is found, but we searched from top to bottom without finding any, though everything was coloured with it.

The road along the north side of Shuswap Lake is very rough, the hills sloping down to the edge of the lake. After about five hours' riding we reached the River Défait, across which we had to swim the horses—an undertaking which the force of the current makes both difficult and dangerous to perform, though the river is only 20 or 30 yards wide. The west bank of this river is about 250 feet high, on ascending which there is a grass plain 5 or 6 miles long, and from that to the River De la Cache is all good grazing ground, and indeed, I might almost say, all the way to the Pavillon. There is a small stream, 2 yards wide, between the rivers Défait and De la Cache, which is dignified by the name of Couteaux River, and here we left the Thompson, and turned a little northward, the river running away to the southward.

All the Thompson River from the Shuswap is very much like the Nicola, but larger and not so pretty. The soil near the River De la Cache is very good, but covered with soda. The river is small and shallow, but just above where it joins the Bonaparte, being the best ford in that river, makes it a good



place for a revenue station, as the Bonaparte river must be crossed in going to either Fountain or Pavillon, except by going round to Lytton, where there is a magistrate.

We crossed the Bonaparte River on the morning of the 19th May, finding only 3 feet 6 inches of water in the deepest part of the ford, which was an agreeable surprise, for we expected this to have been the worst of all the rivers, as it was far the largest we crossed between Kamloops and Pavillon, and, we had been told, the deepest. We skirted along a steep hill, on the north side of it, down which one of the pack horses fell, though fortunately without injury, and we then came down again on the river. This hill would be avoided if the river were bridged, as the bridge would be thrown across higher up, where the trail crosses the stream in winter, but the river at this season is too deep for fording at that part. The valley of the Bonaparte is not quite so much covered with the nitrate of soda as the other valleys we passed through; indeed, neither the Bonaparte or Chapeau valleys contain so much of it as those of the Thompson and Nicola.

We followed the north bank of the Bonaparte for about 7 miles till we met the Chapeau River, from whence we followed the Chapeau for 12 miles, crossing the river several times. The Bonaparte turns northward after its junction with Chapeau to Lake Loon, in which, I believe, it takes its rise.

The Chapeau River is a remarkable one, though only 10 or 12 yards wide, inasmuch as it and the Thompson make an island of about 25 square miles of country, in the same way that the Nicola and Thompson make one of 40 square miles further south. After leaving the Bonaparte it turns westward for about 12 miles, and then turns southward, joining the Fraser about 18 miles above Lytton. Its banks are from 20 to 60 feet high, and the valley averages 800 yards in width. Here the limestone commences, and from this to Lake Pavillon there is hardly anything else.

Leaving the Chapeau, we turned northward through a narrow valley, between perpendicular limestone mountains 4,000 to 5,000 feet high, and came to a small lake (Crown), immediately beyond which is Lake Pavillon, which is about 6 miles long, and three-quarters of a mile wide. At the north end of this lake there is a most curious peak like a round tower, called by the Indians Skillë Pāālōck, and about a mile further on is a farm of about 20 acres, on which three Americans are at work. They had not tried grain when I was there, but said they thought the soil good. Four miles more along the north bank of the Pavillon River, which runs from the lake to the Fraser, brought us to the Pavillon itself.

The Pavillon is on the east bank of the Fraser, on a bench 600 feet above the river, very similar to that at Lytton. It blows, and the dust flies in the same manner. There is one wooden house, and several huts of canvas and boughs, which, like their log contemporaries in the Canons, are called restaurants. Flour was 35 cents per lb., and bacon 75, when I was there. In the winter flour was as high as 85 cents, and bacon \$1 50c.

The charges for carriage of goods, &c. now are, from Pavillon to Kamloops, 25 cents per lb.; to Fountain, 6; to Cayoosh, 8; and to Big Bar, 8; from Lytton to Big Bar, 30 cents. Big Bar is about 18 miles above Pavillon. Silver and copper have both been found at the Pavillon; the latter I have seen.

We left Pavillon on the 23rd of May, and walked by a very good trail to the Fountain. The Fountain, so called from a small fountain there, is a very much prettier and better site for a town than Pavillon; the latter, however, possessing the great advantage of limestone, none of which I saw at the Fountain, though I do not doubt there is some not far from it.

There is a considerable bend in the river at the Fountain, which shelters it to a considerable extent from the north and south winds. There are two or three large stores here, and some half dozen log-huts scattered over the flat. There is a valley at the west end of the flat, which extends southward as far as Foster's Bar, and through which there is a good trail.

About 3 miles below Fountain, on the opposite side of the Fraser, is Bridge River; there is a large store there, belonging to Messrs Fraser and Davis, who have thrown a wooden bridge, about 40 yards long, across the Bridge River, 800 yards from its mouth, for crossing which they make the miners pay 25 cents a head; they having, I am told, pulled down a bridge the Indians had made, and on which it was quite safe to cross. About 1½ miles below this is French Bar, where there is a ferry, by which we crossed, and two miles further on, on the west bank of the river, is situated Cayoosh.

Cayoosh is at the junction of the Tukumeth and Fraser Rivers, where the Harrison Lillooet route commences, and is the prettiest place I saw on the Fraser. Four or five huts, and the same number of stores, compose the town on the west side; on the east side the Hudson's Bay Company are building a fort, to be called Fort Beren. It is to stand on the lowest of three benches, into which the bank is divided, about 50 feet above the water. There is a ferry at Cayoosh, and a trail on either side of the river to Lytton, the drawback to the one on the west side being that the Tukumeth is not always fordable. On the 24th May we again left the Fraser, and struck down the Harrison Lillooet route, and, following the Tukumeth, camped at the north end of Lake Seton, where there are a few huts for the boatmen who ply on the lake.

The following morning we crossed Lake Seton in four hours, and Lake Anderson the same afternoon in five. The two lakes are about the same size, and have much the same appearance, but Lake Anderson tends much more to the southward than the other. Both are bounded by steep mountains, 3,000 to 5,000 feet high, and both are very deep. There is no perceptible current in them, and hardly any rise and fall. Southerly is the prevailing wind, and it blows nearly always during the day, the morning and evening being calm. These lakes are separated by a neck of land 1½ miles wide, which is nearly level, and through which runs a stream 20 or 30 yards wide. Port Anderson is at the south end of Lake Anderson. There is a large restaurant there for the entertainment of muleteers, &c. &c. From Port Anderson to Port Pemberton is the Birkenhead Portage, or, as it is now generally called, the Mosquito Portage, which name it certainly well deserves. It is about 25 miles long by the trail, which is on the whole good. There are regular trains of mules on both this and the next portage. When I was there they charged 8 cents per lb. for packing along this one, but in the winter it was 12 cents.

About 9 miles from Port Anderson is Summit Lake, which is a mile long, and from which the waters run north and south. It is about 800 feet above Port Anderson, and 1,800 feet above the sea. Half way between Ports Anderson and Pemberton there is a large bed of clay-slate nearly two miles long. There is a river called the Scaarlux, running the whole length of this portage. The banks are low and



covered with willows, &c., and many small streams run into it on both sides. The valley of the Scaarlux averages about 1,500 yards in width, except at Port Anderson where it is nearly two miles wide. It is bounded by mountains 1,000 to 5,000 feet high, and generally very steep. There were quantities of wild peas, lettuce, and berries on all the level spots. There are only two valleys of any size running off from it, one near Port Anderson on the east side, and the other near Port Pemberton on the west.

We reached Port Pemberton at 11 a.m. on the 27th. Port Pemberton is on the north bank of the Lillooet Lake, and contains half-a-dozen Restaurants and huts occupied by muleteers and boatmen. There is a large flat in the lake opposite to it which dries the whole way across in the winter, and goods have to be landed a quarter of a mile lower down, but at this season there is a passage wide enough for a boat to come up to a wharf which has been built abreast the town. About 2 feet is the extreme rise and fall on this lake, and there is never any perceptible current.

We left Port Pemberton at 3 o'clock the same afternoon, and arrived at Port Lillooet about 7.30 p.m. We were treated on our arrival there to the first rain that has fallen on the lake this year, and it continued all night. There is only one store and an old barn at Port Lillooet. We left Lillooet next morning for Port Douglas, by what is called the Douglas Portage. There is a small lake, or rather a continuation of the large one, for about 4 miles from Port Lillooet, and from the south end of this little Lillooet Lake, as it is called, flows the Lillooet River, the mouth of which is at the Great Harrison Lake about a mile below Port Douglas. At this season the Lillooet River is entirely unnavigable, on account of several dangerous rapids, in one of which there is a fall of 10 or 12 feet; but in the winter considerable quantities of goods were brought up the river in canoes, with a great saving of expense to the merchants; the Indians charging 5 cents per lb. from Port Douglas to Port Lillooet, when the mule trains were charging 15 cents.

Following the east bank of this river about 8 miles, we came to the Hot Spring (St. Agnes' Well). The temperature of this spring is, I should think about 160°, but the thermometer we had with us when we were there was only graduated to 120°, and it went up to that instantaneously. It flows in a small stream from the centre of a large knob of conglomerate rock (specimens of which I have sent among others to his Excellency the Governor) into a basin at the foot of the rock. I brought a bottle of it down with me, but the quantity was not sufficient for analysis.

We camped that night, 29th, at the Äkotszstar River, and reached Port Douglas at 3 p.m. next day.

We observed no new features on the Douglas Portage, and no limestone since leaving Pavillon.

The Lillooet River is very rapid, averaging 80 to 90 yards in width, but varying from 30 to 130 yards. There is a large stream called the Ämökkwä running into it from the southward, about 9 miles below Port Lillooet, and another from the same direction called the Zöäkleén about 10 miles above Douglas. This latter is said to come from a lake called Zöäklinekt. The trail passes over many steep places which I think might have been avoided, but as an officer of the Royal Engineers is examining it more fully than I did, with a view to making alterations in the route, it is needless for me to make any remarks on this subject. The cedars on the side of the hill above Port Douglas are the finest I have seen in the country. I was told by a Frenchman that he had found gold-bearing quartz about 10 miles above Port Douglas.

Port Douglas is situated on a flat at the head of a small lake about a mile long, which is called Little Harrison Lake. In summer the water rises some distance over this flat. I am unable, however to say how far, as the water was not at its highest when I was there, but even then some of the houses had 2 or 3 feet of water under or in them according as they were built on piles or not.

Between the Little Harrison Lake and the Great Harrison Lake, there is a narrow passage nearly half a mile long. In summer there is sufficient water in it for the flat-bottomed steamers to go through, but in winter there is only 4 or 5 inches, and it is generally frozen over.

The Great Harrison is the largest of the chain of lakes. It is about 30 miles long, and in some places 5 or 6 miles wide, in appearance much similar to the others. There are two large valleys on the east side, one running E.S.E., and the other N.E.; the latter is said to extend nearly to Lytton. There is a stream running down it, which I think takes its rise in the Cayoush Lake. At the entrance to the Great Harrison Lake there is a flat, which, like the small passage at its head, dries or very nearly dries in winter, thereby blocking out steamers for at least seven months in the year; so that during the winter all goods have to be landed at the entrance of Harrison River and taken up the lake in boats. This difficulty may be overcome either by making a canal for the river steamers to pass through or by making a road from the entrance of Harrison River to the south end of the Great Harrison Lake, and keeping a steamer inside the lake to carry the freight to Port Douglas. Or it may be found better to cut a road from the Fraser River through the valley of the south end of the Great Harrison Lake, avoiding Harrison River and the flat altogether. One of these three things must be done if the Harrison Lillooet is to be the high road to British Columbia. It is thought that the opening of a road from Fort Hope to Boston Bar will cause the valley of the Fraser to be used for transporting goods into the interior; but I think this is a mistake, except, of course, as far as the mining bars between Yale and Lytton are concerned. In the first place Lytton is not in so central a position with regard to the mining regions as Cayoush, Fountain, or Pavillon, and the trail from Fountain to Lytton is much better than from Boston Bar to that place.

Gold has now been found in large quantities at Alexandria, and from Pavillon there is a trail through a valley parallel to the Fraser, along which a waggon might be driven nearly the whole way.

There is gold in almost all the tributaries of the Thompson River also, and the road from Kamloops to Fountain or Pavillon is much better than between Lytton and Kamloops.

The country about Chilcoaten is, I am told, very good. A Canadian, residing at Pavillon, informed me he had travelled from Fort Chilcoaten to the lakes on Bridge River, through a valley parallel to the Fraser, and he knows an Indian who has been from thence to Port Douglas by a route leading down the valley east of the Lillooet. And both of these routes he describes as being over good land, and such as a road might be made on without great difficulty.

Between Chilcoaten and the sea there is a chain of mountains through which there are two known passes, one by the west road river, up which Sir A. M'Kenzie went, and the other at the head of Chilcoaten River, which has never yet been crossed by a white man; when Mr. M'Lean was at Fort

Alexandria he received a letter from the "Beaver," lying in North Bentinck Arm, in three days by the latter route.

The change of temperature is very remarkable in British Columbia. I have seen the thermometer at 31° at daylight, in the shade at noon the same day 85°, and 40° again in the evening. I append a table of meteorological observations taken during my tour, as well as those taken on board H.M.S. "Plumper" at the mouth of the river during the same period. The absence of animal life is also very remarkable. The only birds we saw were about half-a-dozen partridges, a few humming birds, American robins, and one or two other species of small birds. There are rattlesnakes in the country, and the chief of the Shuswap Indians told me that his people were frequently killed by their bites; but we saw only one.

I have sent, according to your order, to his Excellency the Governor, the geological specimens collected by Dr. Samuel Campbell; a small collection of plants, made also by that officer, has been given to Dr. Wood.

I cannot close this without expressing my sense of the great obligation I am under to Dr. Campbell, R.N., for his zealous and hearty co-operation on all occasions.

I have also to acknowledge, with pleasure the great kindness I received at the hands of the gentlemen of the Hudson's Bay Company wherever I met them.

I have, &c.

To Capt. George Henry Richards, R.N.,  
H.M.S. "Plumper."

RICHARD C. MAYNE, Lieutenant.

Enclosure 2 in No. 21.

Encl. 2 in  
No. 21.

ABSTRACT of the Barometer, Attached Thermometer, and Temperature of the Air.

Date.	Time.	Baro- meter.	Attached Thermometer.	Temperature of Air.	Remarks.	Date.	Time.	Baro- meter.	Attached Thermometer.	Temperature of Air.	Remarks.
1859.						1859.					
April 1 -	Noon -	30.37	50	47		Apr. 30 -	Noon -	29.96	56	51	
	Midnight	.37	49	44			Midnight	.94	53	41	
" 2 -	Noon -	30.43	54	48		May 1 -	Noon -	29.92	59	53	
	Midnight	.38	51	44			Midnight	.93	56	53	
" 3 -	Noon -	30.47	49	49		" 2 -	Noon -	29.85	64	60	
	Midnight	.45	52	43			Midnight	.88	58	50	
" 4 -	Noon -	30.46	59	53		" 3 -	Noon -	29.95	63	58	
	Midnight	.40	55	46			Midnight	30.08	58	51	
" 5 -	Noon -	30.36	55	51		" 4 -	Noon -	30.31	59	50	
	Midnight	.17	53	41			Midnight	.28	53	45	
" 6 -	Noon -	30.18	59	51		" 5 -	Noon -	30.13	54	58	
	Midnight	.03	57	47			Midnight	29.93	58	57	
" 7 -	Noon -	29.97	57	47		" 6 -	Noon -	29.90	55	55	
	Midnight	.78	53	47			Midnight	29.94	57	52	
" 8 -	Noon -	29.76	55	48		" 7 -	Noon -	29.92	60	57	
	Midnight	.74	50	45			Midnight	29.78	55	49	
" 9 -	Noon -	29.77	56	47		" 8 -	Noon -	30.85	57	52	
	Midnight	.67	47	43			Midnight	30.04	52	46	
" 10 -	Noon -	29.63	48	45		" 9 -	Noon -	30.15	60	49	
	Midnight	.75	46	42			Midnight	.15	56	45	
" 11 -	Noon -	30.02	50	43		" 10 -	Noon -	30.18	58	48	
	Midnight	.04	43	32			Midnight	30.12	52	44	
" 12 -	Noon -	30.15	53	42		" 11 -	Noon -	30.30	58	52	
	Midnight	.26	51	43			Midnight	.42	57	50	
" 13 -	Noon -	30.48	58	45		" 12 -	Noon -	30.54	62	58	
	Midnight	.53	53	46			Midnight	.45	59	51	
" 14 -	Noon -	30.62	59	48		" 13 -	Noon -	30.02	69	64	
	Midnight	.57	57	48			Midnight	.15	63	53	
" 15 -	Noon -	30.42	58	51		" 14 -	Noon -	30.14	71	68	
	Midnight	.22	58	46			Midnight	.06	63	57	
" 16 -	Noon -	30.20	62	48		" 15 -	Noon -	30.15	63	67	
	Midnight	.17	54	47			Midnight	.10	64	59	
" 17 -	Noon -	30.28	59	51		" 16 -	Noon -	29.99	60	57	
	Midnight	.13	55	43			Midnight	.00	59	54	
" 18 -	Noon -	30.16	59	49		" 17 -	Noon -	30.10	63	63	
	Midnight	.16	54	43			Midnight	.02	61	55	
" 19 -	Noon -	30.34	54	49		" 18 -	Noon -	30.10	58	59	
	Midnight	.34	51	38			Midnight	.22	57	57	
" 20 -	Noon -	30.30	55	52		" 19 -	Noon -	30.31	62	58	
	Midnight	.19	55	41			Midnight	.26	60	50½	
" 21 -	Noon -	30.13	59	59		" 20 -	Noon -	30.33	64	59	
	Midnight	.08	56	44			Midnight	.29	60	52	
" 22 -	Noon -	30.04	59	56		" 21 -	Noon -	30.18	65	59	
	Midnight	.02	55	48			Midnight	.05	66	50	
" 23 -	Noon -	29.93	60	55		" 22 -	Noon -	30.05	56	55½	
	Midnight	.86	57	45			Midnight	29.92	55	42	
" 24 -	Noon -	29.86	51	54		" 23 -	Noon -	30.15	60	52½	
	Midnight	.99	56	57			Midnight	.28	54	47	
" 25 -	Noon -	30.16	55	52		" 24 -	Noon -	30.50	61	55	
	Midnight	.19	56	50			Midnight	.51	58	49	
" 26 -	Noon -	30.22	54	50		" 25 -	Noon -	30.52	64	56	
	Midnight	.11	54	47			Midnight	.39	59	51	
" 27 -	Noon -	30.03	52	50		" 26 -	Noon -	30.25	62	64	
	Midnight	29.99	51	44			Midnight	.03	59	54	
" 28 -	Noon -	30.08	52	47		" 27 -	Noon -	29.98	64	62	
	Midnight	.08	57	45			Midnight	.87	61	56	
" 29 -	Noon -	30.06	54	49		" 28 -	Noon -	29.90	60	55	
	Midnight	29.93	53	47			Midnight	.91	56	53	



BRITISH  
COLUMBIA.

ABSTRACT of Barometer, &c.—cont.

Date.	Time.	Baro- meter.	Attached Thermomter.	Temperature of Air.	Remarks.	Date.	Time.	Baro- meter.	Attached Thermometer.	Temperature of Air.	Remarks.
1859.						1859.					
May 29	Noon	29.99	49	52		June 10	Noon	30.01	71	67	
	Midnight	.98	57	51			Midnight	.03	65	60	
" 30	Noon	29.95	60	57		" 11	Noon	30.11	62	59	
	Midnight	30.10	57	50			Midnight	.06	66	59	
" 31	Noon	30.40	61	54		" 12	Noon	30.12	59	56	
	Midnight	.40	56	49½			Midnight	.02	60	55	
June 1	Noon	30.35	59	57		" 13	Noon	30.15	63	59	
	Midnight	.15	59	55			Midnight	.18	58	52	
" 2	Noon	30.10	59	57		" 14	Noon	30.18	64	60	
	Midnight	29.96	61	57			Midnight	.02	59	54	
" 3	Noon	29.97	66	65		" 15	Noon	29.99	57	55	
	Midnight	.86	64	61½			Midnight	.98	60	57	
" 4	Noon	30.22	65	63		" 16	Noon	30.15	65	55	
	Midnight	.38	60	52			Midnight	.18	61	54	
" 5	Noon	30.28	60	58		" 17	Noon	30.28	60	60	
	Midnight	.04	57	54			Midnight	.15	61	52	
" 6	Noon	30.22	54	54		" 18	Noon	30.15	58	58	
	Midnight	.27	56	52			Midnight	.05	60	55	
" 7	Noon	30.24	57	57		" 19	Noon	30.25	61	59	
	Midnight	.34	57	56			Midnight	.35	58	52	
" 8	Noon	30.38	62	61		" 20	Noon	30.38	64	58	
	Midnight	.09	61	57			Midnight	.23	58	56	
" 9	Noon	29.98	62	63							
	Midnight	.87	66	62							

Encl. 3 in  
No. 21.

Enclosure 3 in No. 21.

METEOROLOGICAL OBSERVATIONS taken in BRITISH COLUMBIA during the Months of April and May 1859.

Date.	Barometer and Thermometer attached.				Thermometer.				Remarks, Place, &c.
	6 A.M.	Noon.	5 P.M.	10 P.M.	6 A.M.	Noon.	5 P.M.	10 P.M.	
1859.									
April 20	-	-	-	30° 11-65½	—	—	—	—	Weather very fine. At Langley, Fraser River.
" 21	30° 10-67	—	—	—	—	—	—	—	Fine; night overcast.
" 22	—	—	—	—	—	—	—	—	Fine.
" 23	—	—	—	—	—	—	—	—	Ditto. At Fort Hope.
" 24	-	29° 54-61	-	29° 71-58	—	54	—	54	Ditto; force of wind, 4.6.
" 25	29° 86-51	29° 92-54	-	29° 97-54	51½	54½	—	54	Cloudy, slight showers, &c.
" 26	-	29° 97-56	29° 97-57	29° 98-57	—	54½	54	47	Cloudy.
" 27	29° 79-56	29° 75-56	29° 78-57	-	58	60	51	47	Ditto.
" 28	29° 83-53	29° 83-53	29° 85-56	29° 86-53	45	50	48	38	Ditto, slight showers.
" 29	29° 87-53	-	29° 50-50	29° 53-53	45	50	48	38	Very fine.
" 30	29° 57-54	29° 57-54	29° 61-63	-	45	50	48	38	Cloudy. Fort Yale, F. R.
May 1	-	-	29° 53-62	—	—	—	—	—	Fine. At Fort Yale.
" 2	29° 51-51	29° 52-61	29° 50-58	-	51	60	53	50	Very fine.
" 3	29° 47-40	29° 47-81	-	-	40	85	50	48	Ditto. At Ferry House, F. R.
" 4	29° 60-54	29° 76-62	29° 72-61	29° 73-57	53	63	61	54	Ditto. Passing along river.
" 5	29° 72-47	29° 36-65	29° 08-73	28° 98-59	41	69	60	50	Ditto. Ther. in sun, 84°, at Boston Bar.
" 6	28° 87-41	29° 47-77	29° 13-74	29° 07-58	45	73	74	56	Ditto. Ther. in sun, 80°.
" 7	29° 02-51½	-	-	28° 78-57	50	—	—	52	Ditto. Force of wind, 3.5.
" 8	28° 47-51	-	-	-	50	64	48	44	Ditto. Ditto.
" 9	29° 02-44	29° 07-54	29° 21-61	29° 06-47	40	61	54	42	Fine. Lytton, F. R.
" 10	29° 11-44	26° 50-64	27° 72-50	27° 70-48	43	64	50	37	Ditto. Ditto.
" 11	27° 75-48	28° 04-65	27° 85-60	27° 85-55	30	65	55	55	Weather fine. Passing along the Nicola River.
" 12	27° 92-43	27° 97-64	27° 42-60	27° 81-48	42	70	63	40	Ditto.
" 13	27° 80-41	27° 40-65	26° 25-70	26° 55-44	30	79	70	45	Ditto. On top of Skytawek Hill, near Fort Thompson.
" 14	26° 60-40	28° 62-72	28° 58-66	26° 65-44	32	72	65	50	Ditto. At Fort Kamloops, or Thompson.
" 15	28° 88-46	28° 53-80	-	28° 44-69½	46	76	70	68	Ditto.
" 16	28° 28-69	28° 26-73	28° 35-62	28° 50-58	65	70	50	50	Ditto.
" 17	28° 65-65	27° 69-72	27° 62-72	28° 42-62	65	73	60	58	Ditto. At Lake Shuswap.
" 18	28° 41-58	28° 44-77	28° 11-63	28° 19-55	48	82	56	50	Ditto. Ther. in sun 127°, at noon.
" 19	28° 17-39	27° 61-69	27° 10-67	27° 10-56	34	80	56	53	Ditto.
" 20	27° 11-49	27° 71-73	28° 46-73	28° 28-62	48	80	67	64	Ditto.
" 21	28° 21-68	28° 17-73	28° 17-79	28° 10-60	60	80	73	60	Ditto. Force of wind, 4.6. At Pavillon, Fraser River.

METEOROLOGICAL OBSERVATIONS taken in BRITISH COLUMBIA—continued.

BRITISH  
COLUMBIA.

No. 22.

Date.	Barometer and Thermometer attached.				Thermometer.				Remarks, Place, &c.
	6 A.M.	Noon.	5 A.M.	10 P.M.	6 A.M.	Noon.	5 P.M.	10 A.M.	
1859.									
May 22	28°14-53	28°06-71	28°00-55	28°25-55	51	75	58	55	Slight showers, &c., at Pavilion, Fraser River.
" 23	28°09-49	28°70-67	28°60-63	29°25-55	40	68	63½	59	Cloudy, slight showers. Ditto.
" 24	29°49-53	29°84-67	29°55-72	29°54-57	52	70	67	55	Very fine. Ditto.
" 25	29°54-55	29°32-80	29°15-60	29°15-58	55	80	72	60	Ditto. Ther. in sun 90°.
" 26	29°17-55	29°02-70	28°24-67	28°08-59	55	70	68	59	Ditto. Passing along the Harrison and Lillooet trail.
" 27	28°00-51	29°06-72	28°90-63	28°89-61	50	72	68	61	A.M. fine; P.M. very rainy.
" 28	28°83-56	28°88-62	29°21-57	-	56	65	60	58	Cloudy, slight showers.
" 29	29°28-53	29°42-60	29°77-59	29°75-57	53	60	55	53	Ditto. ditto.
" 30	-	29°67-56	29°74-53	29°82-52	53	60	55	52	Heavy squalls of rain. At Port Douglas,
" 31	29°92-49	30°12-59	30°21-53	30°17-49	49	60	53	49	Fine. At Harrison Lake.

SAMUEL CAMPBELL, M.D., H.M.S. "Plumper."

No. 22.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.Government House, Victoria, Vancouver's Island,  
August 17, 1859.

(Received October 10, 1859.)

Sir,

I HAVE the honour to acknowledge the receipt of your Despatch of the 5th May last, No. 61,\* conveying to me Her Majesty's commands as to the designation to be conferred upon the capital of British Columbia.

2. I have announced by Proclamation Her Majesty's decision, and that the town heretofore known as Queensborough shall, in pursuance of Her Majesty's pleasure, be henceforth called the city of New Westminster.

3. I forward herewith a copy of the "Victoria Gazette" containing the Proclamation in question.

4. I beg you will offer to Her most Gracious Majesty our dutiful acknowledgments for Her kindness and consideration in acceding to our wishes in this matter.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS,  
&c. &c. &c. Governor.\* Vide papers  
presented Aug.  
1859, p. 86.

Enclosure in No. 22.

Encl. in No. 22.

BRITISH COLUMBIA.

PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia, Vice-Admiral of the same, &c.

WHEREAS Her Majesty the Queen has been graciously pleased to decide that the Capital of British Columbia shall be styled the city of New Westminster.

Now, therefore, I, James Douglas, do hereby declare and proclaim that the town heretofore called and known as Queensborough, and sometimes as Queenborough, in the Colony of British Columbia, shall from henceforth be called and known as New Westminster, and shall be so described in all legal processes and official documents.

Issued under the Public Seal of the said Colony, at Victoria, Vancouver's Island, this Twentieth day of July 1859, in the Twenty-third year of Her Majesty's Reign.

JAMES DOUGLAS. (L.S.)

By command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN!



BRITISH  
COLUMBIA.

No. 23.

No. 23.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

Government House, Victoria, Vancouver's Island,

August 18, 1859.

(Received October 10, 1859.)

(Answered No. 29, October 20, 1859, p. 104.)

(No. 206.)

SIR,

Enclosure.

I HAVE the honour of transmitting herewith for your information, a report lately received from Colonel Moody, of a reconnaissance of the Harrison and Lillooet route to the Upper Fraser, under the command of Lieutenant W. S. Palmer, Royal Engineers, which contains much valuable information respecting the character and capabilities of those districts of British Columbia explored by Lieutenant Palmer.

2. The report is accompanied with six explanatory plans, and three photographic views, which greatly add to the general interest of the narrative.

3. If it should please Her Majesty's Government to cause these plans to be lithographed, we have to request that a few sets may be sent out for distribution in this colony.

I have, &amp;c.

The Right Hon. Sir E. B. Lytton, Bart., M.P. (Signed) JAMES DOUGLAS.  
&c. &c. &c. Governor.

Encl. in No. 23.

Enclosure in No. 23.

North Camp, New Westminster (Queensborough),  
July 10, 1859.

SIR,

I HAVE the honour to report that I returned here on the 13th ult., having completed my reconnaissance of the Harrison and Lillooet route to the Upper Fraser.

I forward for your information a detailed report, drawn up in connexion with the instructions I received from you before starting, accompanied by illustrative plans.

I took latitudes at all important points and determined their longitudes in reference to Queenborough, as far as my means would permit; and, although I had only a pocket chronometer, I trust, from the almost perfect identity of my traverses and observations over distances as great as 34 miles, that I have arrived at a close approximation to the truth: owing to the very wooded mountainous character of the country along nearly the whole route, I have been unable to carry out that portion of my instructions directing me "to fix by prismatic observations from known points the positions of remarkable mountains, valleys, &c.," to the extent I desired.

Nor have I deemed it necessary thoroughly to explore the whole of the country through which I passed (which would have involved great delay), being aware that the immediate construction of a road along this route was contemplated, and that you would therefore be desirous that I should return and give such a report as a march over the route, aided by notes and a rough survey, would permit. I beg further to remark that any slight differences in the breadth of rivers, heights of banks, &c., which an examination of the route at this time of the year would show, are due to the rise of the water, which since my return has been very considerable, and which in many places, and more especially on the margin of the Fraser, has entirely changed the appearance of the country.

I have the honour to enclose tables showing the latitudes and longitudes of the places whose positions I have fixed (the assumed longitude of (Queenborough) New Westminster being that determined by Capt. Richards, R.N.), and the distances from point to point on the route.

I have, &amp;c.

Colonel R. C. Moody, R.E.  
&c. &c.

H. SPENCER PALMER,  
Lieut., R.E.

North Camp, New Westminster,  
July 28, 1859.

SIR,

I HAVE the honour to annex to my report on the Harrison and Lillooet route two photographic views of Douglas, the starting point of the new waggon road.

These are accompanied by a specimen of one of several plans now in course of preparation, reduced by the photographic process from the original drawing on a scale of 1,000 yards to an inch, to a scale of 2 miles to one inch, for application to a general map of the country.

I have, &amp;c.

Colonel R. C. Moody, R.E.  
&c. &c.

H. SPENCER PALMER,  
Lieut., R.E.

## A LIST of PLANS accompanying Lieut. Palmer's Report on the Harrison and Lillooet Route.\*

BRITISH  
COLUMBIA.  
—

- No. 1. Plan showing the communication by the Fraser and Harrison Rivers, and Harrison and Douglas Lakes, from a point near Fort Langley to Douglas. Scale 2,000 yards to one inch.
- „ 2. Plan of the First or Lillooet Portage from Douglas to the Tenass Lake. Scale 1,000 yards to 1 inch
- „ 3. Plan of Lakes Lillooet and Tenass. Ditto.
- „ 4. Plan of Lakes Anderson and Seaton, showing the short portage connecting them. Scale 1,000 yards to 1 inch.
- „ 5. Plan of the Fraser district from Seaton to Fountain. Scale 1,000 yards to 1 inch.
- „ 6. A rough trace of an unfinished geographical map of the whole route, from New Westminster to Fountain. Scale 4 miles to 1 inch.

Photographic.

- No. 1. View of Douglas from the R.E. Camp.
- „ 2. View of Douglas from Lake Douglas.
- „ 3. Plan of the Fraser district from Seaton to Fountain, reduced to a scale of 2 miles to an inch.

H. S. PALMER,  
Lieut., R.E.

REPORT on the HARRISON and LILLOOET ROUTE from the Junction of the Fraser and Harrison Rivers to the Junction of the Fraser and Kayoosch Rivers, with Notes on the Country beyond as far as "Fountain," by Lieut. H. SPENCER PALMER, R.E.

May 1859.

As the existing route from Queenborough to Douglas can be performed throughout by steamers at certain seasons of the year, I deem it unnecessary to describe it in detail, dwelling only on those points where engineering works will be necessary to establish it as a permanent route for river steamers at all times.

The Harrison River runs into the Fraser from the northward, at about 35 miles by water above Fort Langley. At the mouth the river is broad and deep, and the current by no means swift, the water of the Harrison being backed up by that of the Fraser at this season of the year. About three miles, however, from the mouth it is extremely shallow and rapid, and although a channel does exist which will admit of bateaux drawing 1 foot or 18 inches of water being towed through at the lowest stages of the water, it is a great deal too tortuous, narrow, and shallow to admit of the passage of steamers of the class at present running on the Fraser, except at high stages of the water.

The Harrison  
River or rapids.

To render this route permanent it will be necessary to form a channel through these shallows of a considerable width (say 40 feet), which shall maintain a depth of at least 3 feet at all times.

At the time I made my reconnaissance the water was too high to admit of my forming any decisive opinion as to the works necessary for the above purpose, but from such information as I have been able to collect, in addition to what I observed myself, the portion that would have to be deepened is not more than a quarter of a mile in length.

I am of opinion that the simplest and easiest way to effect the formation of this channel would be by damming at the upper end of the shallows, an operation that would be greatly facilitated by the existence of the numerous small islands and bars with which this portion of the river is studded, and which, although covered at high water, are perfectly dry in the fall of the year.

The damming might be effected in two ways, either:—

1stly. So as to close the heads of the numerous slews and creeks through which the water at present runs, and thus drive it into one main channel; or,

Method of  
damming.

2ndly. The water might be forced through a narrow channel, by the construction of wing dams at such points as might be necessary.

The actual method to be employed can only be decided on by inspection at low water, but as the river at this part is from 500 to 600 yards wide, I am of opinion that the forcing of so large a body of water through a comparatively narrow aperture would have the effect of deepening the channel to the necessary extent, without any excavation whatever.

From this point to the head of Harrison Lake, a distance by water of 40 miles, no obstruction whatever exists to the navigation. The lake, which is 34 miles in length, is bounded on either side by cliffs so rocky and precipitous in most places as almost to preclude the possibility of constructing a road along its margin, and the formation of a channel through the "shallows" of the Harrison River will in consequence be necessary as a preliminary step, to ensure constant communication with Douglas.

Harrison Lake.

A short narrow creek about half a mile in length connects the north corner of Harrison Lake with a smaller one, called at present "Lake Douglas," about  $1\frac{1}{4}$  miles in length, and three quarters of a mile extreme breadth.

Douglas Creek.

At the lower end of Lake Douglas is a flat, shallow, gravelly bar, on which, although in summer time there is sufficient water to allow of the passage of steamers, there is not above 5 or 6 inches in winter.

Bar in Douglas  
Creek.

There is also an extremely sharp bend in the creek, just below the bar, which is with great difficulty rounded by steamers even at the highest stage of the water, and which, at low water when the creek is not more than one-third of its present breadth, would in my opinion be impassable. I also think that the nature of the soil is such that even if a passage were cut through the bar, there would be every probability of a fresh deposit taking place, owing to the sharp bend immediately below, and coupling this opinion with that above expressed relative to the difficulty of turning the bend, I conclude that to ensure a constant steam communication with Douglas it would be necessary to cut a new and straight channel connecting Lakes Harrison and Douglas.

\* These places have been incorporated into one map, which will be found at the end of these papers.



BRITISH  
COLUMBIA.Douglas, its  
situation.  
Objections to  
site of Douglas.

The town of Douglas is situated at the head of the lake, on ground which descends to the water at a considerable slope, and rises in rear of the town to a height of about 300 feet. This ground is a gully between two mountains, portions of chains which extend down either shore of the lake.

The town site is heavily timbered, with little or no land in its immediate vicinity which could be made use of for agricultural purposes.

Adding to these defects the fact of its being embosomed in hills, which render the mode of egress to the interior by-roads extremely difficult, and the insufficient depth of Douglas Creek, I deem it a very badly chosen spot for a town, and a poor terminus to what is likely to form the main road of communication with the Upper Fraser.

First Portage,  
Trail from  
Douglas to the  
Four-Mile  
House.

The "Lillooet Trail" starts from the western end of Douglas, and keeping to the left of the bed of the gully, ascends to a very considerable height (say 500 feet) on the side of the westernmost of the two mountains.

This portion of the trail is extremely bad.

The line of route that has been adopted is by no means the easiest that the nature of the country affords, and although a considerable ascent is unavoidable, I think that by adopting a line of route, which I shall presently describe, it need not rise to much more than half its present elevation. The bridges and corduroys are indifferent, and the road stony throughout, and in many places swampy for the want of small culverts and drains.

Defects of  
existing trail.

Few or no attempts have been made at regular grading, and the present trail rises in several places over spurs in the hill at grades impassable for any animals but mules, and barely so for them, descending as precipitously on the opposite side.

At about two miles from Douglas the trail reaches its greatest elevation.

It is then carried along on comparatively level ground for about half a mile, when, turning sharply to the right, it descends a steep hill to the bed of the ravine.

Crossing the ravine at a considerable elevation, it is carried along the slope of the opposite mountain for a short distance and then descends very precipitously by a zigzag path to a stony plateau about 40 feet above the level of the Lillooet River, running along this plateau for about half a mile by the side of the river till it reaches the Four Mile House.

Proposed  
change in  
route.

In constructing a waggon road on this portion of the route I would suggest as follows:—

It being almost impossible, from the nature of the ravine in the immediate vicinity of Douglas, to carry the road along its bed, I would recommend that the existing line be adhered to for the first 900 yards, subject of course to such alteration regarding the precise spot of exit from the town as might be thought fit, and with any slight deviations that might improve the regularity of the grade.

On arriving at the First Corduroy (900 yards from Douglas) I would keep to the right, along the ravine which at this point is on the same level as the trail, thereby avoiding an ascent of 200 or 300 feet.

A road might easily be constructed along this ravine for upwards of two miles, subject to no great variation in level, and meeting the old trail at the crossing point, be continued on approximately the same line as far as the top of the steep descent to the plateau.

This hill is unavoidable and can only be made practicable for loaded waggons by long grading through stony and rocky ground at a very considerable expense.

Stony plateau.

On the "stony plateau" the trail winds most unnecessarily, and the construction of a straight waggon road would be a matter of no difficulty whatever.

From Four-  
Mile House to  
Ten-Mile  
House.  
Detail of ex-  
isting trail.

On leaving the four mile house the trail is generally pretty good, though a much better and straighter line of road might be adopted by keeping along the river bank.

At about one mile from the house it leaves the river to the left and mounts an extremely steep and stony hill at a grade at present almost impracticable for waggons.

The ascent continues for about one mile, the descent to the river on the other side of the hill being equally as steep and precipitous as the ascent.

Rejoining the river about three miles from the house, and following it for about 300 yards, the trail again bends to the right and ascends a second hill longer than and equally as steep as the former one, descending to the plateau on which the Ten Mile House is situated at an average angle of about 30 with the horizon.

Defects.

On this portion of the route the same general defects exist as on the first part, viz:—

A bad line of trail both in general direction and in detail.

Precipitous ascents and descents.

Indifferent bridges and corduroys.

A stony and irregular trail.

Proposed  
change in  
route.

I would suggest the following changes in the route, my opinion being formed from an inspection of the places in question.

The road after leaving the Four Mile House should be carried along the river bank as far as the foot of the first hill. Then instead of bending away from the river, it should follow it round the base of the hill, meeting the present trail where it rejoins the Lillooet.

In this portion of the proposed new route there are two bad rocky places, each about 200 yards in extent, caused by spurs from the hill running down to the river, where a good deal of cutting and blasting would be necessary, but as the remainder of the route is good for a road I think this line would be far preferable to that over the mountain, which could not be made practicable for waggons except at an immense expense.

Where the old trail strikes the river again the two routes might coincide for 300 or 400 yards, and then instead of mounting the second hill I would adopt the same plan as before and follow the river round.

The road here, after going along an easy level plateau for about one mile, would strike a small tract where a number of successive spurs tolerably level on the top, but with ravines between them, run down to the river in a southerly direction. The difficulty might, however, be overcome by careful grading round the heads of the ravines.



This formation continues for about one-third of a mile, after which the road would emerge upon a broad and beautifully level plateau with little or no brushwood, and very light timber, much of which has been burnt.

BRITISH  
COLUMBIA.

This flat, which I named in my plan the "Burnt Plateau," is about one mile in extent, and a good road along it might I think be made in two days by a party of 50 or 60 men.

Burnt plateau.

On arriving at the end of the "Burnt Plateau" I came to the "Glens" of the Lillooet river, and found that it would be absolutely impossible to continue the road along the bank, as the cliffs here run down to the water at a considerable angle with the horizon, and the huge boulders and fragments of rock which lie about and the danger that would be incurred from future slides in the cliffs preclude the possibility of so doing.

The glens of  
the Lillooet.

If, however, the road be inclined to the right corner of the "Burnt Plateau," it can be carried up at a tolerable grade to another plateau, between the river and the existing line of trail, but on a much lower elevation than the latter.

By following this route, the additional advantage of an easy descent to the Ten Mile House Plateau would be gained, a point of great importance, as the existing descent is barely practicable.

For the first half a mile after leaving the Ten Mile House, the trail is very irregular. Several small ravines extend across the line of route to the river, and to diminish the steepness of the ascents and descents the trail is carried round the heads of the ravines.

Trail from  
leaving Ten-  
Mile House  
upwards.

It also winds most unnecessarily on the level ground between them. Should a waggon road be made here I would recommend that it be cut straight through: there is plenty of timber at hand and bridges of from 40 to 60 feet span might be built across the ravines, which are only four in number.

After the first half mile a cutting in the side of a hill (which is, I think, unnecessary, there being a fine flat below) leads to a cedar bottom magnificently timbered. I cannot speak positively as to the advisability of carrying the road along the flat mentioned above, as although it was dry when I was there, the water of the Lillooet may have risen since sufficiently high to swamp it.

Cedar Bottom.

The "cedar bottom" is a little swampy in two or three places; this, however, is caused, not by the Lillooet river, but by small streams running down from the mountains, which frequently overflow and leave their natural beds, owing to obstructions caused by fallen logs, &c. This evil might be remedied by clearing proper channels for the rivulets, but I would suggest that a waggon road should keep to the right, on a higher line of level than the existing trail. In the "cedar bottom," which is about three quarters of a mile long and of an average breadth of 500 yards, the soil is very rich, but there is so much timber that I question its availability for agricultural purposes. At  $1\frac{1}{2}$  miles from the Ten Mile House the trail ascends a short steep hill by a zigzag path, and is carried along the side of a small mountain for about half a mile on undulating ground, rising with one more steep ascent to the top of a level, well timbered and stony plateau, on a spur from the mountain.

The hills I fear cannot be avoided, as the banks run down steep to the very edge of the river. At three miles from the Ten Mile House it runs down the hill on the opposite side of the spur and crosses a broad ravine extending from the river to the mountains, and consequently unavoidable.

Crossing the ravine, it rises with a long ascent of one mile, varying in steepness, to a plateau on the summit of another spur. It is continued for half a mile along this plateau, and then descends a hill dreadfully stony, and so steep that it has been necessary in portions to zigzag the path to make it practicable for mules.\*

A waggon road if constructed should be carried down the side of the first spur at a long and gentle grade, and having crossed the ravine should, instead of mounting the hill on the opposite side, be carried round the foot of the hill, by the river, on a much lower plateau than that on which the present route runs.

Proposed alteration in route.

Circumstances prevented my actually walking over the ground in question, but from what I saw myself and the information I collected, I think there would be no difficulty in adopting this line for the road.

Immediately on leaving the Sixteen Mile House the river "Acchuchlah" is crossed by a good substantial log bridge of 45 feet span. A short rise then leads to the top of a fine plateau about 30 feet above the level of the Lillooet river.

Sixteen-Mile  
House.  
River Acchuch-  
lah.  
Trail towards  
Hot Spring  
House.

The trail is carried along this plateau at distances from the river varying from 150 to 400 yards and there would be no difficulty in constructing a good waggon road on a much straighter line than the existing trail.

The plateau is  $2\frac{1}{2}$  miles long and of an average breadth of 500 yards.

Timber abounds, chiefly hemlock pine, and the soil, though stony in some places, is generally good for cultivation. At the end of the plateau the trail descends a short hill to nearly the level of the river, and runs close to the water's edge for a short distance. I here passed a beautiful little patch of land about three acres in extent, abounding with roses and wild fruit, and which, if cleared, might easily be turned to some use.

On the opposite side of the "Lillooet" is a large Indian wigwam and fishing station, with a little clear land and some potato patches around it. The trail now for nearly a quarter of a mile is cut in the side of a stony hill which runs into the water, but as this hill is subject to frequent slides, which would render it a matter of considerable expense to keep a road thus cut in repair, I would suggest that a sea-wall of stones be built 5 or 6 feet out in the river (which is here very shallow) and a road made on the top. There are plenty of large stones at hand for this purpose, and I think it would be easier, cheaper, and generally more advantageous to construct a road in this manner than to make a regular cutting in the side of the hill.

After passing this hill I came to a long point which juts out to the left into the river, and at the extremity of which 200 yards from the trail are the great falls of the "Lillooet."

Falls of Lil-  
looet.

The trail crosses this point on a good general line and rejoins the river about half a mile further up.

\* On arriving at the foot of this hill, a level stony plateau, one mile long, leads to the 16-mile house, situated about 300 yards back from the river.



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It then follows the bank at distances varying from 5 to 100 yards from the river and about 15 feet above it, on a fine level plateau three-quarters of a mile long and 500 yards wide, with good rich soil, scanty timber, and little or no brushwood.

At the end of this plateau there is a very steep rise (zig-zagged) to a ledge on a high clay slate hill. The trail is carried along the side of this hill for about 200 yards, and then descends precipitously to the foot, whence a quarter of a mile tolerably level, but capable of great improvement, leads to the Hot Spring House.

This hill might be entirely avoided and a good road constructed round its foot with the aid of a little blasting.

Trail from Hot  
Spring House.

On leaving the "Hot Spring House" the trail runs for one mile along a fine broad flat about 10 feet above the level of the Lillooet, following the bank for half a mile and then leaving the river which takes a bend to the left. This flat is rather rocky and the soil light and sandy. Hemlock and cedar abound, and there is very little underwood.

Moody's Look-  
out.

At the end of this mile the trail branches to the right, and ascends a gorge between the mountain on the right and a high rocky bluff (named in my plan "Moody's Look-out") on the left. After reaching its highest elevation (about 150 feet) it runs on a comparatively level line along the top of the hill for about a quarter of a mile, and then descends a long steep hill to the river bank.

Proposed  
change in  
route.

This hill should be avoided, if a waggon road be made, by deviating to the left at the foot and following round the base. The ground is level and good throughout the greater part of the distance, the difficulties to overcome being about 100 yards of rocky ground, succeeded by a piece 20 yards long where the bluff rock runs nearly perpendicularly into the river. The first of these difficulties might be mastered by blasting, the second by the construction of a sea wall of the description proposed at the "Great Falls." Immediately after getting round the point the road would strike a fine level flat, continued to the point where the present trail rejoins the "Lillooet."

Schotscheen  
river.

For the next mile the construction of a road is simple enough, and it might be made much straighter than the existing trail. A little careful grading would be necessary to descend into and rise from the valley of the River "Schotscheen," which runs too far back to be rounded, and is too broad to be bridged. This river is about 50 feet wide, and is crossed by a good bridge of 60 feet span. Another mile and a half of very good level trail, along a plateau by the river bank, varying in breadth from 150 to 300 yards, leads to a spot marked in my plan as "Camp" close to the foot of a long range of steep hills. The land thus far is all more or less good for cultivation, timber being rather scanty, and little or no brushwood. The soil is rather light and stony, but is, I think, available for agriculture. From the camp it is exactly 6 miles by the trail to the house at the southern end of "Tenass Lake," known as the "Twenty-eight Mile House," although in reality 34 miles by the trail from Port Douglas.

The Camp.  
From the Camp  
to the Twenty-  
eight-Mile  
House.

The mountains throughout the whole 6 miles run down to the water's edge, and the construction of a waggon road along their sides would be a matter of great difficulty, labour, and expense. There is no plateau whatever along which the road could be carried, and no possibility of avoiding, to any extent, the steep ascents and descents to which the present trail is subject.

Proposed  
change in  
route.

I think it therefore not only highly advisable, but positively necessary to cross the Lillooet River in the neighbourhood of "The Camp." I examined the river for the purpose of finding the best crossing place, and think that the most suitable spot is about 300 yards beyond the Camp.

Mr. Nicol, J.P., was kind enough, on a subsequent occasion, to walk down on the opposite side the whole way from the "lake" to "the Camp," and informs me that there is an excellent Indian trail along the river bank, easily convertible into a good level waggon road. The only obstructions are the rivers "Amockwa" and another, with two mouths, called in my plan "Delta R.," both of which would have to be crossed by bridges of 50 or 60 feet span. There is, in addition to the above, one rocky place to be passed, but this would be no great impediment to the construction of the road.

I have since had an opportunity (while I was descending the Lillooet in a canoe on my return) of examining portions of this part of the proposed new route, and am of opinion that it would be advisable in more ways than one, as, in addition to the advantage of having a level waggon road, there is a great deal of good agricultural land in the neighbourhood, which would thus be opened up for cultivation.

The trail is at present continued beyond the Twenty-eight Mile House as far as the southern end of Lake Lillooet, a distance of 8 miles.

I propose, however, by a method I shall presently describe, that the south end of Tenass Lake be made the terminus of the "First Portage," 8 miles of land transport over anything but a good road being thereby avoided.

Lower end of  
Tenass Lake.

There is an excellent site for a town at the terminus of the new route I have proposed, and as a small one would be very likely to spring up at the junction of the land and water communications, this would be a further inducement to its adoption, there being no sort of site for a town at the terminus to the present trail.

Lakes Lillooet and Tenass are connected by a river about  $1\frac{1}{2}$  miles in length, rapid, and towards the mouth very shallow. The difference of level between the lakes I ascertained to be 10 feet  $6\frac{3}{4}$  inches on the 23d May 1859.

Proposed con-  
nection of lakes.

By constructing a dam of the necessary height across the "Lillooet River," where it leaves "Tenass Lake," the water in the two lakes might be brought to the same level, and a permanent water communication thus established. This damming would have the effect of swamping portions of the flat land in the neighbourhood of the "Tenass River," but that at the terminus of the proposed route is too high to suffer in like manner. The dam might easily be constructed of logs, snags, and stones, plenty of which are at hand.

Possibly a permanent water communication between the two lakes might be effected by deepening the Tenass River at and near its mouth. As, however, I was not on the ground at the lowest state of the water, I cannot speak as to the extent of the portion that would have to be deepened, but from such information as I could collect, it would only be necessary to form a channel at and near its mouth. On



this part there is, I am told, but 6 inches of water in winter time, the remainder of the river being quite deep enough to admit at all times of the passage of steamers of the small class likely to be established on the lakes.

Thus far I have described such deviations from the existing line of trail as would be required, supposing it absolutely necessary to construct a waggon road on the left bank of the Lillooet from Douglas as far as "the Camp."

I am, however, of opinion that the site of Douglas is extremely badly chosen.

In addition to the defects I have already pointed out, I am informed by the Indians that Lake Douglas freezes in the winter, or remains so for some time, while the Harrison never freezes at all.

In the north-west corner of the latter lake, there is a high dry site for a town, accessible at all times to boats and steamers, and open to the valley of the Lillooet River. As a protection from the sea, which is sometimes rather rough for boats, a breakwater of snags might easily be constructed at the point shown in the plan, to form a small harbour, behind which they might lay in safety. By making this the terminus of the route, a constant steam communication with Queenborough could be established (the channel once open in the rapids of the Harrison River), and there would be this additional advantage, viz., that the flat land in the valley of the Lillooet would become opened up for cultivation.

BRITISH  
COLUMBIA.

Proposed new  
road to Douglas

Its advantages.

From the cursory view I was enabled to take of the right bank of the river, during my rapid descent in a canoe, I am of opinion that from the Harrison Lake to the point opposite the plateau below the Sixteen Mile House, a road could be far more easily made along that bank than on the present route.

Not having actually walked over every portion of the ground, I cannot speak very decidedly on this point, but adding to the opinion I was enabled to form the fact that the old Indian trail runs along the right bank the whole way from the Harrison Lake to the Tenass Lake, and the well-known circumstance that the Indian trails throughout North America invariably follow the best line of travel through a wild country, I conclude that at least a great portion of the road should be carried along that bank.

I have accordingly come to the following opinions on this point, viz.:—

That the starting point of the route should be changed from Douglas to the north-west corner of the Harrison Lake.

Proposed new  
road to Tenass  
Lake.

That the waggon road be carried along the right bank of the Lillooet River, as far, if possible, as the point opposite the lower end of the plateau below the Sixteen Mile House.\*

That the river be bridged here, and the road carried along the left bank as far as "the Camp," following the general direction of the present trail, subject, of course, to the deviation already proposed.

That the Lillooet be re-crossed at the point marked on the plan, and the road then constructed on the right bank of the river, and terminated at the south end of the Tenass Lake.

I may here mention that Sapper Breakenridge, who has since made a reconnaissance of the right bank from the Harrison Lake, as far as the point opposite the Four Mile House, reported to me, after going over both routes, that the one on the right bank, although rather swampy in some places, was far preferable to the existing one, and I think still better might be found by keeping further back from the river.

The distance by water from the south end of the Tenass Lake to the north-west end of Lake Lillooet is about 21 miles; the shores of both lakes being equally as precipitous as those of the Harrison.

Lakes Tenass  
and Lillooet.

The town of Pemberton, which, when I was there, consisted of five or six houses, stands on a wretched rocky site in the northernmost corner of Lake Lillooet. At high stages of the water the town is accessible to boats, but in the winter a long flat bar of sand prevents their coming within 500 yards of it. From this place the second portage commences, known now as the "Birkenhead Portage;" nor is there any better starting point in the vicinity.

Pemberton.

The valley of the Upper Lillooet, which river runs into the lake at its western extremity, takes a westerly direction from the head of the lake. The river about 5 miles from its mouth divides into two, a large delta being left between the mouths, which in summer time is again divided in two by a creek.

Valley of the  
Upper Lillooet.  
Lillooet mea-  
dows.

On this delta, and particularly towards its western point, a few farming men have cultivated land, and there is also a large Indian village, surrounded by potato patches, &c. In the centre of each island is a small lake, and the ground for a considerable distance from their edges is swampy, but the banks are high and dry all the way round, contain good soil, and are covered with magnificent grass.

The trail on leaving Port Pemberton is carried over ground very similar to that at the back of Douglas, but in this case the ravine has been adhered to, and the hills are far less precipitous than those near Douglas. I was unavoidably compelled, both on my way up and on my return, to travel very rapidly over this portage, and consequently unable to make detailed field notes, or survey the route as accurately as I should have wished. The trail, which for the whole 24 miles runs through a natural pass in the Cascade range, is on the whole far better than that on the Douglas portage, and, with the exception of blasting round two or three rocky hills, no great deviation from the present route would be necessary, if *Port Pemberton be made the point of departure*.

Birkenhead  
portage.

As, however, it might be necessary, in the event of this route being made the main channel of communication with the upper country, to establish a town of some size at the junction of the land and water communications, the site of Port Pemberton should in this case be abandoned.

There is a good site for a town near the mouth of the Mosquito River, which empties itself into the Upper Lillooet opposite the Indian village, on the westernmost of the Lillooet Islands. If, therefore, the bar at the mouth of the southern or main branch of the river were deepened sufficiently to admit at all

Proposed new  
site for Pem-  
berton.

\* If impossible to carry it as far as the point proposed, there are several good crossing places along the river (one half a mile below the Four-Mile House), but the Port Douglas hill should by all means be avoided.



BRITISH COLUMBIA.	times of the passage of steamers, I would suggest that the town be established at the mouth of the Mosquito River, and the road run along the valley, striking the old trail at its junction with that river.
Its advantages.	The large valley of the Upper Lillooet would thus be opened up, and inducement given to farmers to clear and cultivate the land in the vicinity of this town, which might otherwise be neglected, in consequence of its remoteness from any main route of communication.
Summit Lake.	About 17 miles from Pemberton the trail runs along the shore of a small lake one mile long and half a mile broad.
Agricultural land in Cascade Pass.	This lake, which is situated on the summit of "the Pass," is called "Summit Lake," and from either end there is a descent to the Fraser, that from the north by Anderson River, through Lakes Anderson and Seaton and the River Imkumtch, and that from the south end, by the Mosquito River through the Lillooet and Harrison Lakes.
Grazing land near Anderson.	After passing the Summit Lake, I crossed a tract of valley land two or three miles in extent, containing little timber, and good rich loamy soil, irrigable, if necessary, from Anderson River.
Anderson. Its site and advantages.	In the vicinity of Anderson and for some little distance down the eastern shore of the Lake there is plenty of good grazing land for sheep and cattle on the sides of the mountains, and I am informed that owing to the absence of briars &c., this part of the country is very well adapted for raising good wool.
	The town of Anderson is situated as shown in the plan on the south-western end of Lake Anderson. The site, as regards its suitability both for a town, and a point of departure for steamers, is extremely good.
	The bank is high and dry, (about 15 feet above high water mark), timber plenty and fine, but not too much of it, the soil good, and the land for one mile in rear, flat and easily irrigable. A good jetty has been built by the men who have settled there and own the boats that convey passengers across the lake; and as the water is deep close in shore the port is accessible at all times to steamers.
Distance across lake.	From Anderson to the spot marked in my plan as "Wapping," which consists of one log house for travellers to sleep in is 14 miles by water.
The short portage.	The short portage connecting Lakes Anderson and Seaton, (1½ miles in length) commences here and terminates at the spot marked "Flushing."
Waggon road.	A Mr. Dozier, an American, who has established a waggon for conveying provisions across this portage, constructed a waggon road last year, connecting the two lakes, entirely at his own expense. The road is a very fair one, and as he has likewise constructed a neat and substantial bridge across the "Seaton River" of 60 feet span, I would suggest that, in the event of this becoming a permanent route, the by no means trivial service he has done to the colony be recognised. It will be seen on looking at the plan that it is necessary to cross the river as there is no starting place for boats or room for houses on the right bank at the Lake Seaton end.*
Land in vicinity of Short Portage.	The land on this portage is stony but colable. The timber is scanty but the brushwood thick, and there is a fine patch of rich land to the north-west of Flushing. Both that place and "Wapping" are admirably adapted for the points of departure of steamers, and as a site for small towns, if necessary.
Difference of level between lakes.	On the 30th of May I found the difference of level between the two lakes to be 59½ feet, a difference which would combine with the softness of the soil to render the construction of a canal of communication a matter of considerable difficulty. Several locks would moreover be necessary, and I question whether it would not be better to run the goods across the isthmus on a tramway which might easily be made from one jetty to the other.
Seaton.	At the eastern end of Lake Seaton, 14 miles by water from Flushing is situated the small town of Seaton. The houses are built on the beach, which is not more than 30 or 40 yards broad in the widest places, and immediately in their rear a steep bank about 100 feet high leads to a large diamond shaped plateau or bench, on which there is good grazing land for cattle (bunch grass), and very little timber. The site of Seaton possesses the same advantages as a point of arrival and departure for steamers, as the other places on these lakes, but there is no room to establish a town except on the top of the bench, which would, I think, be too far above the water.
Trial from Seaton to Walden's Bridge.	The trail winds round the point of the plateau at a steep rise, and on attaining a height of about 50 feet is carried along the side of the hill at an undulating level for about half a mile.
Forks of the Kayoosch and Imkumtch.	Here it emerges on a level and very stony plateau about one-third of a mile broad, bounded on the north by the "Imkumtch" and on the south by the "Kayoosch" Rivers. These rivers join in one about three-quarters of a mile further on, and the trail is carried along the plateau to within 100 yards of this point.
Packer's Bridge.	It then crosses the Imkumtch on a rough log bridge built last May by the Packers between Seaton and Kayoosch. A large rock in the bed of the river forms a natural pier for the support of the center of the bridge.
Trail from Packer's Bridge to Kayoosch.	For the next three-quarters of a mile the trail runs along the side of a stony mountain at a considerable elevation, on a small ledge cut for the purpose. This portion of the route is very dangerous, and, owing to the frequency of large slides in the mountain side, impassable for a waggon-road.
Bench-land on Fraser.	Passing round the point of this mountain, the trail emerges on the level grassy bench land peculiar to this district of the Fraser, and running along this land for about 1½ miles at a very slight variation in level reaches the small town of Kayoosch, situated on the western bank of that river.
	The benches in the vicinity of this portion of the Fraser, which are covered with "bunch grass," and in some places scantily timbered, would form excellent grazing lands for cattle, but the soil is, I think, too dry to be cultivated to any extent. There are two or three small rivulets running through the bench on which the town of Kayoosch is situated, which affords a supply sufficient for the wants of the present inhabitants, and for irrigating a small patch of about 10 acres on a lower bench in front of the town, now under cultivation, and I daresay more might be obtained by digging wells,

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\* The ground here is also marshy.

but water to any great extent is not to be had on the upper benches, either on the Kayoosch or the Fort Berens side of the Fraser.

The majority of the benches, although beautifully clear and level, are, I think, at two great an elevation above the Fraser River to be well adapted as sites for towns, that for instance on which Kayoosch stands being about 150 to 200 feet above the river. They vary in length from half a mile to  $1\frac{1}{2}$  miles, and in breadth from 200 to 1,000 yards, the slopes connecting one bench with that above it, being generally at an angle of about  $45^{\circ}$ .

I was unable to procure any means of crossing to the southern bank of the Kayoosch, but I was able to see sufficient from the opposite side to convince me that, on that bank, at its junction with the Fraser, is the best site for a town in the neighbourhood. At this part a considerable flat, 300 or 400 yards wide, and about 20 feet above the level of the Fraser, (June 1st), extends some distance down the shore of the Fraser and up the Kayoosch.

Behind this flat and about 100 feet above it, is another extensive plateau, to which a town might be extended, while any amount of water power might be obtained in that portion of the town on the lower flat, by flowing from the "Kayoosch."

I suggest, therefore, that instead of crossing the "Imkumtch" at the Forks of that river and the "Kayoosch," the latter river be bridged at, or near the same point, whence an almost natural waggon road extends to the proposed town site on the right bank, a distance of 125 miles.

The trail from Kayoosch to the bank above French Bar requires no alteration whatever, extending along the flat benches at occasional slight changes in level for about  $2\frac{1}{4}$  miles. It then runs down a frightfully steep bank to the "Bar," and as the remainder of the route both from this point to the mouth of Bridge River, and thence on to Mormon Bar is so bad as to render the construction of a waggon road barely possible, I will proceed at once to report on the best route to Fountain, that in my opinion the nature of the country will permit.

The Kayoosch should, I think, be bridged from the south, as near its mouth as practicable, and the waggon road carried round near the Fraser at the lowest possible elevation as far as French Bar.

Crossing the Fraser at a point on the bar, which will be found practicable where the river is only about 75 yards wide,\* it should ascend the steep bank on the opposite side at a gentle grade, whence, with the exception of one place, subject to slides, the road to Fountain is generally good.

Fountain is situated on the left bank of the Fraser, on a large bench upwards of one mile in length, about 500 yards wide, and 700 or 800 feet above the level of the Fraser, to which the bank makes a direct steep descent.

One-and-a-half miles beyond the Fountain, a trail branches off to the southward and runs at the back of the range of mountains which skirts the left bank of the Fraser as far as the Forks of the Thompson's River. This trail is, I believe, the best and the shortest route from the Forks to the upper country; the country between Kayoosch and the Thompson affords every facility for the construction of a good waggon road on the right bank, though the existing one on the left bank is, I understand, very bad for a large portion of the distance.

Water to a considerable amount is procurable at Fountain, from a lake  $2\frac{1}{2}$  miles back in the mountains, but, although a town on the flat might be of some importance in connexion with the branch roads to the Forks, Pavillon, and Kayoosch, the site is at too great an elevation above the Fraser to admit of the establishment of a town in connexion with any traffic that may, at a future period, take place on that river.

The land around and in the valley leading to the Forks is of the same nature as that around Kayoosch, viz.: excellent for grazing, but too dry in summer, unless well irrigated to admit of agriculture to any important extent.

In the Buonaparte Valley which extends from Pavillon to Fort Thompson there are, I understand, from 40 to 50 square miles of rich land fit for cultivation. In this valley too, there is a great deal of black marble, and limestones abound at Pavillon and in its neighbourhood.

With regard to Fountain I should add that a town there might at a future period be of importance in connexion with a road from Canada through the Buonaparte valley to Kayoosch.†

At the south end of Harrison Lake, about three-quarters of a mile to the south-east of the point where the river and lake join a hot spring called "St. Alice's Well" is situated.

The water, whose temperature on the 20th of May was  $130^{\circ}$  Fahrenheit, bubbles out of a small mass of conglomerate rock 6 inches above the then level of the lake.

It is highly sulphurous, but owing to my having been unable to procure a perfectly clean bottle and cork, the specimen I sent down to Victoria, proves, I regret, to be unfit for further analysis.

Another hot spring, somewhat similar to St. Alice's and of about the same temperature, though not so highly sulphurous, is situated about 60 yards north-east of the Hot Spring House,  $23\frac{3}{10}$  miles by the trail from Douglas. By a subsequent cursory examination this water was found to contain chloride of sodium and sulphate of soda, but, owing to the impossibility of my procuring a perfect specimen, an accurate analysis could not be made.

As I thought a few particulars relative to the mines might prove useful, I collected such information *en route* from the miners, as might, I hoped, be depended on.

At French Bar, rockers were averaging from \$4 to \$8 per day to the hand, sluices, \$8 to \$16.

Mormon Bar, opposite Fountain, rockers \$4 to \$12: sluices, \$16 to \$25.

Days' Bar, 2 miles above Fountain, rockers, \$8 to \$12.

Haskell's Bar, 18 miles above Fountain, rockers, \$6 to \$12: sluices, \$16 to \$20.

Big Bar, rockers, \$5 to \$6.

Every sensible miner to whom I spoke on the subject, clearly admitted the existence of gold all along the banks of the Upper Fraser, in considerable quantities; in quantities too, that, were it not for the exorbitantly high prices of provisions and the want of good fresh meat and vegetables, would attract and retain thousands of miners who were then leaving the country.

BRITISH  
COLUMBIA.

Proposed site  
for town at  
mouth of  
Kayoosch.

Proposed con-  
sequent altera-  
tion in route.

Trail from  
Kayoosch to  
French Bar.

Proposed trail  
from Kayoosch  
to Fountain.

Fountain.

Trail to the  
Forks.

Fountain as a  
town site.

Buonaparte  
Valley.

St. Alice's  
Well.

St. Agnes'  
Well.

The mines.

\* There is a rock about one-third of the way across covered at high water, but dry in the fall. On this rock a pier might easily be made.

† With reference to other interesting features in the route I would beg to call your attention to the following.



BRITISH  
COLUMBIA.

The great cry is for a waggon road, and cheap and good provisions, and these once obtained, there will be no further doubt as to the stay of the miners in the country.

Dry diggings have yet to be found and there is no doubt, will be found, as soon as men have heart and strength to prospect the country in every direction; but as long as bacon and beans are the sole articles of diet, few if any will be found with the heart or strength to do more than support themselves by mining for a few hours each day, much less to travel over such a wild country and such bad trails as they must do, in order to explore the districts in the vicinity of the Upper Fraser.

Prices of pro-  
visions.

At Douglas the prices of provisions were as follows on the 11th June, viz. :—

Flour and Beans, each	-	-	-	-	-	-	6½ cents per lb.
Sugar and Bacon	„	-	-	-	-	-	25 „
Coffee	-	-	-	-	-	-	28 „
Tea	-	-	-	-	-	-	75 „

The prices increase all along the route and were as follows at Fountain on the 5th June, viz. :—

Flour and Beans each	-	-	-	-	-	-	30 cents per lb.
Sugar and Bacon	„	-	-	-	-	-	65 „
Coffee	-	-	-	-	-	-	75 „
Tea	-	-	-	-	-	-	150 „

Prices up to the end of May had been considerably higher (flour for instance selling at 38 cents,) but owing to the rapid exodus of the miners, were when I arrived falling fast.

Geology.

From the cursory view I was enabled to take of the general geological character of the country “Trappean rocks” appear to prevail, consisting principally of greenstone, dense clay slate (here and there presenting a laminated structure) and compact hornblende. The exposed surfaces of the rocks are very generally covered with the white deposit due to the decomposition of felspar, and are occasionally stained red with iron, forming an agreeable contrast in the landscape. Quartz veins permeate the clay slate in many places, of an average thickness of from 1 to 12 inches; the formation in fact would suggest the high probability of metalliferous deposits.

The mountains rise bold, rugged, and abrupt, with occasional benches on their sides on which are found quantities of worn rounded boulders principally of coarse grained granite, occasionally porphyritic. The granite contains golden coloured and black mica in large quantities. The crystals of felspar in the porphyritic granite are very numerous but small.

The soil appears in many places to have been formed by the decomposition of granite, it being light and sandy and containing much mica.

Below the soil is very generally found a white compact mass, very hard and approaching to a conglomerate, containing pebbles of every description in a matrix of decomposed clay slate.

Lime seems wanting, even in the conglomerate, and I saw no traces of limestone or sandstone all along the route, though I understand there is plenty of the former at Pavillon.

I have, &c.

Queenborough, B. Columbia,  
July 1, 1859.  
Colonel E. C. Moody, R. E.  
&c. &c. &c.

H. SPENCER PALMER,  
Lieut. Royal Engineers.

TABLE showing the Astronomical Positions of important Points on the Route, as computed by  
Lieut. H. SPENCER PALMER, R.E.

Station at	Latitude North.	Longitude in Time East of Queenboro'.	Absolute Longitude West.
	° ' "		° ' "
Queenborough	49 12 58	- -	122 53 15
Mouth of Harrison River	0 14 25	3 25.596	0 01 51
South end of Harrison Lake	0 19 00	4 00.688	121 53 04
Douglas	0 45 35	2 46.808	122 11 33
Ten-mile House	0 52 41	2 12.972	0 20 03
South end of Tenass Lake	50 03 00	1 10.445	0 35 38
„ Lillooet Lake	0 07 52	1 09.546	0 35 52
„ Pemberton	0 17 32	0 40.240	0 43 11
„ Anderson	0 32 13	1 11.872	0 35 17
„ Flushing	0 42 25	2 02.356	0 26 39
„ Seaton	0 40 18	3 10.146	0 05 43
„ Kayoosch	0 41 51	3 22.753	0 02 33
Mouth of Bridge River	0 45 33	3 17.753	0 03 48
„ Fountain	0 44 44	3 27.508	0 01 22

(Signed) H. SPENCER PALMER,  
Lieut. Royal Engineers.

TABLE OF DISTANCES.

BRITISH  
COLUMBIA.

From	To	Distance by Land (trail) in Miles.	Distance by Water in Miles.
Queenborough Camp	Fort Langley	-	17·000
"	Mouth of Harrison River	-	47·700
"	South end of Harrison Lake	-	57·700
"	Douglas	-	92·700
Douglas	Four Mile House	4·047	—
"	Ten Mile House	11·852	—
"	Sixteen Mile House	18·911	—
"	Hot Spring House	23·881	—
"	The Camp	27·999	—
"	South end of Tenass Lake	34·000	—
Southend of Tenas Lake	South end of Lillooet Lake	-	6·650
"	Pemberton	-	21·130
Pemberton	Half-way House (2nd portage)	15·000	—
"	Anderson	29·000	—
Anderson	Wapping	-	14·000
Wapping	Flushing	1·45	—
Flushing	Seaton	-	14·000
Seaton	Kayoosch	3·700	—
Kayoosch	Mouth of Bridge River	4·200	—
"	Point opposite Fountain	6·500	—

Total from Queenborough to Fountain :—By land (trail) - - - 74·65 miles.  
By water - - - 141·83 "

Entire distance, Queenborough to Fountain - - - 216·48 "

(Signed) H. SPENCER PALMER,  
Lieut., Royal Engineers.

No. 24.

No. 24.

COPY of DESPATCH from Governor DOUGLAS, C.B., to the Right Hon.  
Sir E. B. LYTTON, Bart., M.P.

(No. 207.) Victoria, Vancouver's Island, August 23, 1859.  
(Received October 10, 1859.)  
(Answered No. 33, October 28, 1859, page 105.)

SIR,  
HAVING been much occupied of late with the affairs of Vancouver's Island, I have not in my last Despatches adverted to the state of British Columbia. That Colony is making satisfactory progress.

2. The great enterprise of the season, the waggon road from Douglas through the valley of the Harrison River to the Upper Fraser, beyond the mountains, has been necessarily retarded by the withdrawal of the Royal Marines for service on the Island of San Juan; but the work is still being prosecuted by a detachment of Royal Engineers, under the command of Captain Grant. That force is, however, insufficient to make much impression this season on a work of such magnitude; winter will in all probability find us unprepared, and we shall have again to encounter the arduous task of feeding the mining population of the interior, by packing provisions on mules over the present road; a process so expensive as materially to add to the cost of living, and consequently notwithstanding their large earnings, the miners are, from positive inability to live, compelled in great numbers to abandon the country.

3. Money is greatly wanted for carrying on that indispensable work, which might be completed for the sum of 30,000*l*.

4. That sum I have no doubt could be easily raised by way of loan either in England or in this country, provided its repayment were guaranteed by Parliament, and I would beg to draw the attention of Her Majesty's Government to that subject in order to procure the necessary aid for accomplishing an enterprise worthy of our country, and removing the great impediment to the development of the mining regions of British Columbia. Its influence in promoting the prosperity of the country would be incalculably great, and it would lead to so large an increase of the public revenue as soon to repay the preliminary outlay.



5. On the contrary, without such facilities of access, the country will have to struggle on amidst the discouragements of poverty and distress.

6. The mule road from Fort Hope to Boston Bar has been recently completed, and will be of great advantage to that district of the country.

7. Much is also required to be done in improving the road from Fort Yale by the passes of Fraser's River; in short, on all sides is the helping hand of Government urgently required in opening a free access into a country whose resources are probably greater than our most sanguine speculations ever contemplated. Every step in advance confirms that opinion, and reveals more distinctly the auriferous wealth of the country.

8. My advices from Fort Yale are up to the 17th of August. Mr. Commissioner Sanders reports that the miners are, almost without exception, doing exceedingly well, and in the newly discovered diggings at Quesnel's River, are making on the average one ounce of gold to the man per diem.

9. Those accounts are confirmed by numberless letters from persons in the interior to their former partners or friends in the Fort Yale district, exhausting all their powers of persuasion to induce them to join them at Alexandria.

10. Mr. Cox, a revenue officer employed in the district of Thompson's River, reports that the miners in that part of the country are making very large wages, and mentions that one company of five men were procuring by sluices an aggregate return of from 250 to 300 dollars a day; and others with the cradle were averaging each from 10 to 12 dollars a day.

11. The newly explored tract of mining country about Alexandria and Quesnel's River is reported to have more of the general features of a gold country than any yet known part of British Columbia. The miners appear fully satisfied on that point, and of the auriferous character of the soil in the valley of Fraser's River; already are hydraulic mining associations forming, who expect to derive considerable profit by that process, from benches and flats which cannot at present be worked to advantage for want of water.

12. The miners on Fraser's River have been much delayed this season by the high state of the water, which has now subsided, and they have resumed work with great spirit.

13. Ditch owners on the other hand have already felt the want of water, and complain that the streams from which they draw can hardly supply one-fourth of the usual and requisite quantity of water.

14. Much anxiety has been expressed by the miners generally on the subject of banks of deposit, which are greatly needed in every district of British Columbia. The miners only alternative at present being to bury his gold dust for security, which is known to be the general practice in Fraser's River; but were banks of deposit established, they would willingly pay a monthly per-centage on any sums they might deposit.

15. I have long been convinced of the value and importance of such institutions; but without the assistance of men of tried integrity and business habits, no such scheme could be carried out with advantage to individuals or to the public.

16. The country is everywhere in a perfectly tranquil state.

17. A body of nearly 100 gold miners sailed from this place on the 27th of July to explore the gold fields of Queen Charlotte's Island, and I trust this little band of pioneers will meet with the success their enterprise deserves. The expedition was equipped entirely at their own expense. I promised, however, to exempt the party from all taxes for six months to come, and to allow them certain privileges in respect to quartz claims, not inconsistent however with the provisions of the general mining regulations which I propose shortly to issue.

18. I also promised to protect them in the prosecution of their enterprise as far as the means at my disposal allow, and in fulfilment of that promise I have made a requisition on Rear Admiral Baynes, for the assistance of a ship of war to visit the place where they intend to form their settlement.

19. If that attempt proves successful the result will be highly important for the colony, and Queen Charlotte's Island, which abounds in minerals, and its coasts with fish, will soon become the resort of many flourishing settlements.

20. I am looking forward with great anxiety for the arrival of the two gunboats which Her Majesty's Government announced in your Despatch No. 30,\* of the 10th March, it was intended to place at my disposal for the defence and protection of this colony.

\* Vide papers presented August 1859, page 81.

21. Those vessels would be of incalculable advantage to the country; its coasts might then be explored, settlements formed, and protected from Indian violence, in a manner which with my present means is simply impossible.

22. The late numbers of the "Victoria Gazette"\* are herewith transmitted for your information.

BRITISH  
COLUMBIA.

Nos. 8 to 26 of  
the Victoria  
Gazette, July  
12 to Aug. 23

The Right Hon. Sir E. B. Lytton, Bart.  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

No. 25.

No. 25.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the Duke of  
NEWCASTLE.

(No. 218.)

Victoria, Vancouver's Island, September 13, 1859.

MY LORD DUKE,

(Received November 1, 1859.)

I HAVE the honour to transmit herewith, for the information of Her Majesty's Government, copies of the following Proclamations which have been lately issued for the colony of British Columbia, *i.e.*

- (7.) Proclamation, dated 15th May 1859, for the naturalization of aliens in the colony of British Columbia, alluded to in my Despatch No. 167\* of the 8th June last.
- (8.) Proclamation, dated 19th May 1859, for the relief of Her Majesty's subjects, entitled the "Oaths Act," 1859.
- (9.) Proclamation, dated 2nd June 1859, altering, in some respects, the act for levying duties of customs on imports into British Columbia.
- (10.) Proclamation, dated 15th June 1859, imposing tonnage, pilotage, and harbour dues at the Port of Queensborough, now New Westminster, British Columbia.
- (11.) Proclamation, dated 25th June 1859, amending the same.
- (12.) Proclamation, dated 10th August 1859, amending the laws relating to the licences for selling spirits, &c., and for other purposes.
- (13.) Proclamations, dated 31st August 1859, entitled the "Gold Fields Act," together with rules and regulations for working of gold mines, dated 7th September 1859.

\* Page 20.

2. The "Aliens Act" confers upon such persons the privilege of holding and conveying real estate, and of being naturalized, within the colony, after a residence therein of three years, and is calculated in all its provisions to attach the alien to the country of his adoption, and through a sense of obligation to Her Majesty's rule.

3. The amended "Customs Act" imposes further duties:—

On tobacco, for purely revenue purposes.

On distilled liquors and spirits of all sorts, not only to increase the revenue but also with the view of reducing the disparity of cost to the consumer between the cheap American spirits, now largely imported from San Francisco, and the better qualities of spirits imported from Great Britain; and to encourage the importation of the latter.

On flour and other articles of food, entering largely into the consumption of the mining population, for revenue purposes. These articles were previously charged with a low specific duty, for the benefit of that class, who were then taxed through the act imposing a monthly mining licence fee, which is now repealed.

4. The "Spirit Licence Act" repeals all former acts for levying duties on the sales of wines and spirits.

The charge on spirit licences is reduced to a much lower sum, intended to compensate, in the case of keepers of licensed houses, for the increased customs duties levied on spirits.

5. The "Gold Fields Act," with the annexed rules and regulations, embraces the whole subject of gold mining, and provides very fully for contingent questions. Miners' rights are guarded with special care. As a class they are free from any direct taxes beyond the annual charge of 1*l.* for the free miners' certificate.

That document places them in a position of perfect security, with respect to mining claims, and secures to each free miner the right of voting at elections.

Mining boards, having a power to make byelaws, with the consent of the Gold Commissioner, may be formed whenever 100 or more registered free miners are found in any district.

It is also provided that the mining boards may be dissolved by the Governor, a power which it may, in certain cases, be necessary to use; at the same time the mining boards



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will be fostered and encouraged as long as they confine their influence to its legitimate object, that of improving the condition of the gold fields.

The other acts do not appear to require special notice, and, with those reported on, will I trust meet with your Grace's approval.

His Grace the Duke of Newcastle,  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

Encl. 1 in  
No. 25.

(No 1.)

Enclosure 1 in No. 25.

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament, made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by Proclamation under the Public Seal of the said Colony to make laws, institutions, and ordinances for the peace, order, and good government of the same:

And whereas it is expedient to afford to aliens desirous of becoming naturalized British subjects, facilities for so doing, and also to afford greater security and facility in the possession and transferring of land, and for quieting of titles transmitted in part or in whole through aliens:

Now, therefore, I do hereby declare, proclaim, and enact as follows, viz:

1. Every alien now residing, or who may hereafter come to reside in the said Colony with intent to settle therein, and who shall have actually resided therein, or in the adjacent Colony of Vancouver Island, or partly in the one Colony and partly in the other, for a continuous period of three years, without having been, during any portion of that time, a stated resident in any foreign country out of Her Majesty's dominions, shall be entitled to procure himself to be naturalized in manner herein-after described.

2. Every alien desirous of becoming so naturalized, shall procure a declaration of residence and character, to be made and subscribed by some British subject in the form marked A. in the schedule hereto. Such alien shall, in the next place, make and subscribe a declaration of residence in the form marked B., in the said schedule hereto, and shall also take the oath of allegiance to Her Majesty and Her Successors, in the form marked C. in the said schedule.

3. Every such declaration and oath may be taken, made, and subscribed before any Justice of the Peace acting in any part of the Colony of British Columbia, or before any person appointed by Her Majesty to be a judge in British Columbia. Every such declaration and oath shall be forthwith delivered to such alien, with the certificate at the foot thereof, signed by such justice of peace, or by the registrar of the said judge, stating the compliance on the part of the said alien with the regulations herein-before contained.

4. It shall be lawful for the said alien to present all the said documents, properly subscribed and filled up as aforesaid, in open Court, on the first day of any assizes or general sittings of the Court of British Columbia, in any place in the said Colony. And all such documents shall be then read aloud in open Court, and it shall be lawful for the said Court, on the last day of the said assizes or general sittings, to order all the said documents and proceedings to be entered as of record in the said Court. And thereupon such alien shall be admitted and deemed, while within the said Colony of British Columbia, to be thenceforth a British subject to all intents and purposes whatever, and to hold, enjoy, and transmit all property, rights and capacities, in the same manner as if born within Her Majesty's dominions.

5. Any woman (not a British subject previously to her marriage) married to a British subject, whether by birth or naturalization, shall be deemed to be a British subject, naturalized as from the date of her marriage, or of her husband's naturalization, whichever event shall last happen.

6. The declarations herein-before referred to (the forms whereof are set forth in the schedule hereunto) shall be deemed to be made in accordance with the Act 5 & 6 Wm. 4. c. 62, for the abolition of unnecessary oaths; and any wilful false statement made therein shall be deemed perjury, and shall expose every person making such false statement, or procuring the same to be made, to all the penalties of perjury. And in addition to all such penalties, it shall be lawful for the said Court, on motion by the prosecutor, on any trial for perjury or subornation of perjury in respect of any such declaration, to declare null and void the naturalization based upon such false declaration; and thereupon all such steps shall be taken as shall be thought fitting by the said Court. Provided nevertheless, that nothing shall affect the rights of any other person, derived under the person whose naturalization is so annulled, unless such other person shall have been cognizant of the perjury at the time of acquiring the right.

7. There shall be paid to the justice of the peace before whom such declarations and oath as aforesaid shall be taken and subscribed, the sum of four shillings and no more for each such declaration and for such oath respectively; and by the registrar of the said Court for reading and recording the said certificate and documents, the sum of six shillings and no more; and for every copy of such documents the same amount as for an office copy of any judgment of the said Court. And all such fees shall be applied as any other fees payable to justices and registrars are applicable by law or custom.

8. Every alien shall have the same capacity to take, hold, enjoy, recover, convey, and transmit title to lands and real estate of every description, in this colony, as if he were, at the time of the passing of

this Act, a natural born British subject; and no person shall be disturbed in the possession or precluded from the recovery of any lands or real estate in this colony by reason only that some person from or through whom he may derive his title was an alien.

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9. This Act may be referred to in all legal proceedings as the Aliens Act, 1859.

Issued under the Public Seal of the said Colony, at Victoria, this 14th day of May 1859, in the Twenty-second year of Her Majesty's Reign, by me,

JAMES DOUGLAS. (L.S.)

By his Excellency's command.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.

The Schedule before referred to.

FORM A.

I, M.N. of do solemnly declare that I am a naturalized British subject (or British-born subject, as the case may be) and that I have known A.B. of a Prussian subject (or as the case may be) ever since and that the said A.B. has resided within the Colony of for a period of [three years or upwards], that he is a person of good character, and that there exists to my knowledge no reason why to the said A.B. there should not be granted all the right and capacities of a natural born British subject, and I make this solemn declaration conscientiously believing the same to be true, and in compliance with the provisions of the statute made and passed in the session of Parliament held in the 5th and 6th years of the reign of the late King William IV., intituled an Act for the abolition of unnecessary oaths.

Signed M.N.

Declared and subscribed by the said M.N., before me, in pursuance of an Act of the Imperial Parliament of the United Kingdom, 5 & 6 William IV. c. 62, and of the Proclamation of the 14th day of May 1859. And I hereby certify that to the best of my knowledge and belief, the said A.B. has complied with the requisite formalities specified in such Proclamation, entitling him to be naturalized as a British subject, and I know of no reason why he should not be so naturalized.

(Signed) J.P.

J. P. for British Columbia, residing at this day of 185

FORM B.

I, A.B. do solemnly declare that I have resided three years in this colony (or in this colony and the adjacent colony of Vancouver's Island, as the case may be) with intent to settle in this colony, and without having been during that time a stated resident in any foreign country. And I make this solemn declaration conscientiously believing the same to be true, and in compliance with the provisions of the statute made and passed in the session of Parliament, held in the 5th and 6th years of the reign of the late King William IV., intituled an Act for the abolition of unnecessary oaths.

(Signed) A.B.

Declared and subscribed before me, in pursuance of an Act of the Imperial Parliament of the United Kingdom, 5 & 6 William IV. c. 62, and of the Proclamation of the 14th day of May 1859. And I hereby certify that to the best of my knowledge and belief the said A.B. has complied with the requisite formalities specified in such Proclamation, entitling him to be naturalized as a British subject, and I know of no reason why he should not be so naturalized.

Signed J.P.

J. P. for British Columbia, residing at this day of 185

FORM C.

*Oath of Allegiance.*

I, A.B., do swear that I will be faithful and bear true allegiance to Her Majesty Victoria, of the United Kingdom of Great Britain and Ireland, and of the dependencies and colonies thereof in Europe, Asia, Africa, America, and Australasia, Queen, and that I will defend Her to the utmost of my power against all conspiracies and attempts whatever, which shall be made against Her Person, Crown, or Dignity, and I will do my utmost to endeavour to disclose and make known to Her Majesty, Her Heirs and Successors, all treasons and traitorous conspiracies which may be formed against Her or them. And I do faithfully promise to maintain, support, and defend to the utmost of my power the succession of the Crown, which succession by an Act intituled "An Act for the further Limitation of the Crown and better securing the Rights and Liberties of the Subject," is and stands limited to the Princess Sophia, Electress of Hanover, and the Heirs of Her Body, being Protestants, hereby renouncing and abjuring any obedience or allegiance unto any other person claiming or pretending a right to the Crown of the said realm and its dependencies and colonies as aforesaid, and I do declare that no foreign prince, person, prelate, state, or potentate hath or ought to have any jurisdiction, power, superiority, pre-



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eminence or authority, ecclesiastical or spiritual, within the same or any other part thereof. And I make this declaration upon the true faith of a Christian. So help me God.

(Signed) A.B.

Sworn and subscribed by the said A.B., before me, this                      day of                      185 . And I hereby certify that to the best of my knowledge and belief, the said A.B. has complied with the requisite formalities specified in the Proclamation of the 14th day of May 1859, entitling him to be naturalized as a British subject, and I know of no reason why he should not be so naturalized.

(Signed) J.P.

Justice of the Peace for British Columbia, residing at                      this                      day of                      185

Encl. 2 in  
No. 25.

(No. 2.)

Enclosure 2 in No. 25.

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament, made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said colony, and have been authorized by Proclamation under the Public Seal of the said colony to make laws, institutions and ordinances for the peace, order, and good government of the same:

And whereas it may be doubted whether the provisions of an Act of the Imperial Parliament made and passed in the tenth year of the reign of His late Majesty King George IV., intituled "An Act for the relief of His Majesty's Roman Catholic Subjects," or of an Act of the Imperial Parliament made and passed in the 22nd year of the reign of Her most Gracious Majesty Queen Victoria, intituled "An Act to substitute one oath for the oaths of allegiance, supremacy, and abjuration, and "for the relief of Her Majesty's subjects professing the Jewish Religion," and of another Act made and passed in the same year, intituled "An Act to provide for the relief of Her Majesty's subjects "professing the Jewish Religion" are applicable to persons not subjects of Her Majesty: And whereas it is expedient to give relief to the consciences of all such persons, as well subjects of Her Majesty as aliens, and also to give relief to the consciences of all persons who shall be conscientiously unwilling to be sworn:

Now, therefore, I do hereby declare, proclaim, and enact as follows; viz.,

1. If any person called as a witness in any Court of Judicature, or required or desiring to take any oath or to make an affidavit or deposition, shall refuse or be unwilling from alleged conscientious motives to be sworn, it shall be lawful for the Court or Judge, or other presiding officer or person qualified to take such oath, affidavit, or deposition, upon being satisfied of the sincerity of such objection, to permit such person, instead of being sworn, to make his or her solemn affirmation or declaration in the words following; viz.,

"I, A. B., do solemnly, sincerely and truly affirm and declare, that the taking of any oath is, "according to my religious belief unlawful, and I do solemnly, sincerely and truly affirm and "declare," &c. &c.

Which solemn affirmation and declaration shall be of the same force and effect as if such person had taken an oath in the usual form, and shall in like manner infer the penalty of perjury in case of falsehood.

2. If any person professing the Roman Catholic religion shall be required by any lawful authority, or shall be desirous for any purpose to take the oath of allegiance to Her Majesty, Her heirs and successors, it shall be sufficient if he shall in lieu thereof take the oath in the form appointed and set forth in the 2nd section of the Act made and passed in the Parliament of the United Kingdom, held in the tenth year of His late Majesty King George IV. intituled "An Act for the Relief of His Majesty's "Roman Catholic Subjects."

3. If any of the persuasion of people called Quakers, or any other person under this or any other law permitted to make his solemn declaration or affirmation in lieu of an oath, or any person professing the Jewish religion, shall at any time be required by any lawful authority, or shall be desirous for any purpose to take the oath of allegiance to Her Majesty, Her heirs or successors, or any form of oath containing the words "And I make this declaration upon the true faith of a Christian" the said words, "and I make this declaration upon the true faith of a Christian," shall be omitted in the form of oath to be taken or the declaration or affirmation in lieu of an oath to be made by such person. And the taking of every such oath, or the making of such affirmation and declaration with such omission as aforesaid shall have the same force and effect as the taking and subscribing by other persons of the oath containing the said words "and I make this declaration upon the true faith of a Christian."

4. This Proclamation may in all legal proceedings and documents be referred to as "The Oaths "Act, 1859."

Issued under the Public Seal of the said Colony at Victoria, this 19th day of May, one thousand eight hundred and fifty-nine, in the Twenty-second year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.

Enclosure 3 in No. 25.

(No. 3.)

PROCLAMATION.

BRITISH  
COLUMBIA.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia. Encl. 3 in No. 25.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by proclamation under the Public Seal of the said Colony to make laws and institutions and ordinances for the peace, order, and good government of the same:

And whereas it is expedient to alter in some respects the rates of duties of Customs now leviable upon goods and other articles and things imported into British Columbia, and to make further provision for the levying thereof:

Now, therefore, I do hereby declare, proclaim, and enact as follows; viz.,

1st. All goods, animals, and articles not herein-after specifically charged with any duty of Customs, and not herein-after exempted from the payment of duties of Customs, shall on being imported into British Columbia be charged and chargeable with a duty of ten pounds for every one hundred pounds value thereof at the port of entry.

2nd. There shall be levied and paid on the goods, articles, and animals next herein-after mentioned the duties of Customs following; viz.,

Spirits and distilled liquors of all sorts, sweetened or otherwise, for every	s.	d.
imperial gallon of full strength or less than full strength of proof, by		

Sykes' hydrometer	-	-	-	-	-	6	3
-------------------	---	---	---	---	---	---	---

And so in proportion for any greater strength than proof, or for any less quantity than one gallon.

Bulls, cows, oxen, horses, asses, and mules per head	-	-	-	4	2
--	---	---	---	---	---

Sheep and goats per head	-	-	-	2	1
--------------------------	---	---	---	---	---

Tobacco, viz., cigars and cheroots per 100	-	-	-	4	2
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Tobacco, viz., snuff and other preparations per pound	-	-	-	0	6
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3rd. The following goods, animals, and articles shall be admitted into British Columbia free of all duties, viz., Coin, fresh meat, fresh fruit, and fresh vegetables, poultry alive or dead, machinery for agricultural purposes, seeds and bulbs, and roots of plants to be used in agriculture and not as food, salt, printed and manuscript books and papers, and the baggage and apparel, household furniture and professional apparatus of passengers. And also, all goods, animals, and articles whatever imported for the public service or uses of the Colony of British Columbia, or for the use of Her Majesty's land or sea forces, or of any person holding any command or appointment in Her Majesty's forces aforesaid. Provided always, that all articles so excepted from duty as above mentioned, as being property of passengers or officers, shall be bonâ fide the property of such passengers and officers, and not intended for making a profit by the sale or hire thereof.

4th. From and after the 15th day of June now next, the port of Queensborough shall be the sole port of entry for all vessels entering Fraser River, and for all goods imported by sea into the ports of British Columbia adjacent to Fraser River. And all vessels desirous of clearing for any other port of British Columbia may thenceforth clear at Queensborough aforesaid for such ports as may for the time being be open for traffic: Provided, nevertheless, that until the said 15th day of June now next, all the duties hereby made leviable shall be ascertained, levied, and paid at Victoria, in Vancouver Island, in the same manner as heretofore has been used with respect to the duties now levied and paid, and the same shall be under the management of the Collector of Her Majesty's Customs for British Columbia; provided further, that all vessels desirous to clear for any port in British Columbia north of Fraser River, which may for the time being be open for traffic, may do so, clearing as heretofore at the port of Victoria aforesaid, paying nevertheless the full duties hereby charged and made leviable, and all such last-mentioned duties shall be paid to and under the management of the Collector of Her Majesty's Customs for British Columbia.

5th. The bill of entry and the declaration of the importer shall be according to the form prescribed for the entry of dutiable goods by the Act of the Imperial Parliament passed in the 16th and 17th year of Queen Victoria, entitled the "Customs Consolidation Act, 1853."

6th. All evasions and offences committed by any person or persons to defeat the payment of the duties hereby made payable on any goods imported into British Columbia will be prosecuted and punished in the manner prescribed by the said "Customs Consolidation Act, 1853."

7th. The expression "British Columbia" shall include the whole Colony of British Columbia with its dependencies as by law established.

8th. This proclamation shall take effect, and the duties hereby imposed shall be leviable upon any goods imported or attempted to be imported into British Columbia, from and after the 3rd day of June now next.

Issued under the Public Seal of the said Colony, at Victoria, this 2nd day of June, one thousand eight hundred and fifty-nine, in the Twenty-second year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,

Acting Colonial Secretary.

GOD SAVE THE QUEEN.



Enclosure 4 in No. 25.

BRITISH  
COLUMBIA.

(No. 4.)

PROCLAMATION.

Encl. 4 in  
No. 25.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by proclamation under the Public Seal of the said Colony, to make laws, institutions, and ordinances for the peace, order, and good government of the same:

Now, therefore, I do hereby declare, proclaim, and enact as follows; viz.,

1. From and after the 15th day of June now next there shall be levied, collected, and paid at the Port of Queensborough, in the said Colony, for the use of Her Majesty, Her heirs and successors, as and for tonnage, pilotage and harbour dues on all vessels clearing outwards at the said port for parts beyond sea, or entering inwards at the said port from parts beyond sea, and on the cargoes and contents of such vessels, the several sums mentioned in the Schedule hereto in respect of the particulars opposite to such several sums.

2. The fees for pilotage mentioned in the said Schedule shall be paid in full only where the vessel shall have actually made use of the services of a licensed pilot. Where a licensed pilot shall have offered his services to or hailed a vessel leaving or making for the said port, and his services shall have been declined, half the dues mentioned in the Schedule shall be payable by such vessel to such pilot. Where no licensed pilot shall have been employed or offered his services or hailed such vessel, or where such vessel carries on board as one of her crew a licensed pilot belonging to the said port, no pilotage shall be payable.

3. All moneys and dues hereby made payable may be paid to the Collector, who is hereby authorized to demand and enforce payment of all such moneys from the master of the vessel in respect whereof such moneys are payable, and to give full and complete receipts and discharges for the same.

4. In case of any dispute concerning any moneys hereby authorized to be levied and paid or the evasion or attempted evasion of the payment thereof, the amount payable shall be ascertained and recoverable under the provisions of the Customs Consolidation Act, 1853, so far as such provisions are from local circumstances capable of being applied, in the same manner as if the moneys hereby made payable were duties of Customs lawfully imposed.

5. From and after the 15th day of June instant the Proclamation of the 5th March last past, and every clause and provision therein, shall cease and be of none effect, save as to moneys and penalties recoverable, payable, and enforceable under the same Proclamation previously to the date hereof.

6. In the construction of this Proclamation and the Schedule hereto the expression "parts beyond sea" shall include any port upon or beyond the Gulf of Georgia or any of the inlets thereof; the expression "vessels" shall include canoes and boats; the expression "Collector" shall mean the Collector of Her Majesty's duties of Customs at the said port of Queensborough, or in his absence the person for the time being performing the functions of such Collector; and the port of Queensborough shall comprise all the waters, mouths, and channels of Fraser River between the deep water of the Gulf of Georgia and a line drawn due north and south through the eastern extremity of Tree Island.

Issued under the Public Seal of the Colony of British Columbia, this 15th day of June, one thousand eight hundred and fifty-nine, at Langley, in the said Colony.

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.

The SCHEDULE above referred to.

	£	s.	d.
For every sailing ship or vessel above 30 tons register either entering or leaving the said port, per ton register	-	0	0 3
For every steam vessel either entering or leaving the said port, per ton register	-	0	0 2
For every vessel of and under 30 tons, including boats and canoes	-	0	7 6
For every passenger on board any vessel conveyed to or from parts beyond sea	-	0	4 0

Pilotage; viz.,

For every Vessel clearing for or entering from parts beyond sea; viz.,			
If less than six feet draught of water	-	5	0 0
If more than six feet and less than seven feet draught of water	-	5	10 0
And for every additional foot of water up to 12 feet	-	0	10 0
And for every additional foot of water above 12 feet	-	0	15 0

Inland Navigation; viz.,

Every steamer trading on the Fraser River, and not trading to any part beyond sea, per ton register per annum	-	0	2 0
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(No. 5.)

Enclosure 5 in No. 25.

BRITISH  
COLUMBIA.

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia.

Encl. 5 in  
No. 25.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by Proclamation under the Public Seal of the said Colony to make laws, institutions, and ordinances for the peace, order, and good government of the same:

And whereas by a Proclamation issued on the 15th day of June 1859 certain changes were made in the manner of levying, and the amount of clearance, pilotage, and other dues, and fees for British Columbia: And whereas some unavoidable delays have occurred in giving public notice of the intended changes thereby made:

Now, therefore, I do hereby declare, proclaim, and enact as follows; viz.,

1. The dues, moneys, and fees payable by the said Proclamation from the date therein mentioned shall, except as herein-after mentioned, be payable, ascertained, and recoverable from the 5th day of July 1859, according to the said method in the said Proclamation of the 15th day of June prescribed.

2. So much of the said Proclamation as prescribes a due for every passenger on board any vessel conveyed to parts beyond the sea is hereby repealed.

Issued under the Public Seal of the Colony of British Columbia, at Victoria, Vancouver's Island, this 25th day of June one thousand eight hundred and fifty-nine, in the Twenty-third year of Her Majesty's reign.

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.

(No. 6.)

Enclosure 6 in No. 25.

Encl. 6 in  
No. 25.

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

To amend the Laws relating to the Licences for Selling fermented Liquors, and for the Occupation of Crown Lands by Traders, and for other purposes.

WHEREAS under and by virtue of an Act of Parliament made and passed in the Session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by Proclamation under the Public Seal of the said Colony to make laws, institutions, and ordinances for the peace, order, and good government of the same:

Now, therefore, I do hereby declare, proclaim, and enact as follows; viz.,

I. The Proclamations of the 28th day of December 1857, and of the 8th day of February last, and the Regulations of the 30th day of December 1857, and of the 13th day of July 1858, shall, from and after the 31st day of August 1859, cease and be of none effect, save only as to any wrongs and penalties recoverable and enforceable under the said Proclamations or Regulations, or any of them.

II. From and after the 31st day of August 1859, there shall be payable and paid, by every person described in the Schedule hereto, in lieu of all sums heretofore payable in respect of all or any such matters, licences, and trades therein specified, the sums therein respectively mentioned, and therein set opposite to the said several matters, licences, and trades respectively, and the said Schedule shall be taken to be part of this Proclamation.

III. All moneys payable under this Proclamation shall be payable in advance.

IV. This Proclamation may on all occasions be cited as the "Licences Act, 1859."

Issued under the Public Seal of the said Colony, at Victoria, this Tenth day of August, one thousand eight hundred and fifty-nine, in the Twenty-third year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.



BRITISH  
COLUMBIA.

The SCHEDULE above referred to.

By each person vending spirituous or fermented liquors by retail, for each house or place in the Colony where such vending is carried on, if in a town - - - - -	25l. for one year.
Where such vending is carried on in a rural district not forming part of a town - - - - -	10l. for one year.
By each person not having a retail licence as above, and vending spirituous and fermented liquors for wholesale, for each house or place in the Colony - - - - -	10l. for one year.
By every person carrying on any other trade - - - - -	1l. for every 3 months.

Such last-mentioned licence to enable the person paying the same to change his place or abode of business at pleasure, but not to carry on business at two places, at the same time, under one licence. And in case of partnerships, every partner carrying on business in the Colony, during any portion of a quarter, must take out a trading licence for that quarter.

By every person occupying any Crown lands, by making any erections thereon, and carrying on any trade upon the same, in addition to the duties above charged, and for the use of the land so occupied by him - - - - -	10s. for every month.
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Encl. 7 in  
No. 25.

(No. 7.)

Enclosure 7 in No. 25.

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia, Vice-Admiral of the same, &c. &c.

Proclamation having the Force of Law in Her Majesty's Colony of British Columbia.

WHEREAS under and by virtue of an Act of Parliament made and passed in the Session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said Colony, and have been authorized by Proclamation under the Public Seal of the said Colony, to make laws, institutions, and ordinances for the peace, order, and good government of the same:

And whereas by the "Licences Act, 1859," it was declared that from and after the 31st day of August 1859 the Proclamation of the 8th day of February last past, and the regulations and instructions therein mentioned and referred to, and bearing date respectively the 13th July 1858, the 28th December 1857, and the 30th December 1857 should cease and be of no effect:

And whereas it is expedient to make provision for regulating the law of gold mines in British Columbia in lieu of the provisions so repealed, and for the administration of justice therein.

Now, therefore, I, James Douglas, do hereby declare, proclaim, and enact as follows; viz.,

I. In the construction of this Proclamation the following expressions shall have the following interpretations respectively, unless there be something inconsistent or repugnant thereto in the context; viz., "The Governor" shall include any person or persons for the time being lawfully exercising the authority of a Governor of British Columbia.

The expression "Gold Commissioner" shall include Assistant Gold Commissioner and Justices of the Peace acting as Gold Commissioners either under special authority or the authority of this Proclamation, or any other person lawfully exercising the jurisdiction of a Gold Commissioner for the locality referred to.

The word "mine" shall mean any bar or separate locality in which any vein, stratum, or natural bed of auriferous earth or rock shall be mined.

The verb "to mine" shall include any mode or method of working whatsoever, whereby the soil or earth, or any rock may be disturbed, removed, washed, sifted, smelted, refined, crushed, or otherwise dealt with for the purpose of obtaining gold, and whether the same may have been previously disturbed or not.

"Claim" shall mean in speaking of individual persons so much of any mine as by law may belong or be alleged to belong to the individual spoken of, and in speaking of any partnership so much of any mine as may by law belong or be alleged to belong to the persons of whom the partnership shall exist, but shall not extend to a lease of auriferous land as mentioned in clause 11.

"Free Miner" shall mean a person named in and lawfully possessed of an existing valid Free Miner's certificate.

"Registered Free Miner" shall mean a free miner registered as entitled in his own right to any claim, lease of auriferous earth, ditch, or water privilege.

And words in the singular number shall include the plural, and the masculine gender shall include the feminine gender.

II. It shall be lawful for his Excellency the Governor by any document under his hand and the Public Seal of the Colony, from time to time to appoint such persons as he shall think proper, to be Chief Gold Commissioner or Gold Commissioners or Assistant Gold Commissioners in British Columbia, either for the whole Colony or for any particular district or districts therein, and from time to time in like manner to fix and vary the limits of such districts, and limit new districts, and to revoke any such appointments and make new appointments, and vary such limits and subdivide any such districts into separate and independent districts.

Interpretation  
clause.

" Governor,"

" Gold Com-  
missioner,"

" Mine."

" To mine."

" Claim."

" Free Miner."

" Registered  
Free Miner."Gold Commis-  
sioners to be  
appointed by the  
Governor under  
the Public Seal.

III. It shall be the duty of every Gold Commissioner upon payment of 1*l*. to deliver to any person applying for the same, a certificate to be called a Free Miner's Certificate, which may be in the following form:—

BRITISH  
COLUMBIA.

Free Miner's  
Certificate.

BRITISH COLUMBIA.

FREE MINER'S CERTIFICATE.

Date,

Not transferable.

No.

Valid for one year.

This is to certify that A. B. of \_\_\_\_\_ has paid me this day the sum of One Pound Sterling, and is entitled to all the rights and privileges of a Free Miner for one year from the date hereof.

(Countersigned) A. B.

(Signed) G. B.

(Signature of Free Miner.)

Chief Gold Commissioner, or Assistant  
Gold Commissioner, or Justice of the  
Peace, as the case may be.

IV. The Free Miner's Certificate shall continue in force for twelve calendar months from the date thereof, including the day of issuing the same, and no longer, and shall not be transferable or capable of conferring any rights upon any other person than the person therein named, and only one person shall be named as a free miner in each certificate

To continue in  
force for one  
year.

Such certificate must be countersigned by the free miner therein named before being produced by him for any purpose. And where such certificate shall be issued to the free miner therein named in person, the Gold Commissioner or the person issuing the same shall cause the same to be countersigned by the applicant before himself signing or delivering the same.

Must be coun-  
tersigned by the  
free miner.

V. Every free miner shall, during the continuance of his certificate have the right to enter without let or hindrance upon any of the waste lands of the crown, not for the time being lawfully occupied by any other person, and to mine in the land so entered upon.

Right to enter  
and mine.

VI. All persons who shall at the date of this Proclamation coming into force, or previous to the 27th of October 1859, hold any claim, ditch, or water privilege, must on or before the 1st of November, now next, and all persons who shall at any time after the 26th of October now next, hold any claim, lease, ditch, or water privilege must within such space of time after first taking possession thereof, as shall be fixed by the rules, regulations, or byelaws for the time being in force in the place or district in which such claim, lease, ditch, or water privilege shall be situated, register the same at the office of the Gold Commissioner, who shall record in a tabular form, in a book or books to be kept by him, the name of the holder, the dates of his certificate, of his taking possession, and of his recording the claim, the name of the mine, and the distinguishing number of the claim, and all such further particulars as shall from time to time be required by any valid byelaw for the place or district. And such registration shall be valid for the space of one year and no longer.

Registration of  
claim annually.

Four shillings shall be taken by the Gold Commissioner for the use of Her Majesty, Her Heirs and Successors, upon every registration or re-registration of any claim; and no person not being a free miner shall be entitled to record a claim or any interest therein.

VII. Every free miner shall have during the continuance of his certificate the exclusive right to the soil and gold in any claim for the time being duly registered and worked by him according to the regulations and byelaws hereby authorized to be issued, and for the time being in force, in relation to the locality or district where such claim is situated.

Free miners  
alone recog-  
nized as having  
any right in  
claims, &c.

No person shall be recognized as having any right or interest in, or to any claim or any of the gold therein unless he shall be, or in case of any disputed ownership unless he shall have been at the time of the dispute arising a free miner.

Priority of  
right shall be  
recognized ac-  
cording to pri-  
ority of regis-  
tration.

VIII. In case of any dispute the title to claims, leases of auriferous earth or rock, ditches, and water privileges will be recognized according to the priority of registration, subject only to any question which may be raised as to the validity of any particular act of registration.

IX. Every Gold Commissioner at the time of issuing any free miner's certificate shall record the paper by date, number, and name of the free miner named therein, and whether such certificate was issued to such miner in person or on the application of another person, and the applicant's name, and shall on the 1st of January, 1st of April, 1st of July, and 1st of October in every year cause to be made out a revised list of all the free miners holding certificates issued by himself and still in force, and also of all free miners registered as holding claims in his district, and shall cause to be posted up in a conspicuous place on each mine in his district, a list of the free miners for the time being as holding registered claims in such mine.

Records to be  
kept of the  
F. M. C. issued.

The Chief Gold Commissioner shall in like manner, on the 1st of January and 1st of July in every year, cause a revised list to be published of all the free miners in British Columbia. All such records and lists shall be open to the inspection of the public gratis, under such reasonable regulations as to hours or otherwise as the Gold Commissioner in each place or district may from time to time ordain.

X. In case any free miner's certificate shall be accidentally destroyed or lost, the same may, upon evidence of such loss or destruction, be replaced by a new certificate to bear the same date and to be issued and signed by the Gold Commissioner for the same district as such lost or destroyed certificate. Every such new certificate shall be marked "substituted for original of same date this \_\_\_\_\_ day of \_\_\_\_\_." And until some material irregularity or impropriety be shown in respect thereof, every original or substituted free miner's certificate shall be evidence of all the matters stated therein or clearly implied thereby.

Lost certificates.

XI. Leases of any portions of the waste lands of the Crown may be granted for mining purposes, for such term of years, and upon such conditions as to rent and the mode of working, and as to any water privileges connected therewith, and otherwise in each case, as shall be deemed expedient by his Excellency the Governor.

Leases of auri-  
ferous lands.

XII. In respect to any place or district wherein there shall for the time being be no Mining Board as herein-after described, or any separate mine within such place or district, it shall be lawful for his Excellency the Governor, by writing under his hand and the Public Seal of the Colony, from time to

Rules and re-  
gulations to be  
issued under  
the Public Seal.

III.



BRITISH  
COLUMBIA.

time to make rules and regulations in the nature of byelaws concerning all matters relating to claims and ditch and water privileges, and leases of the auriferous lands in the Colony in larger quantities than the claims herein mentioned or referred to, and for the registration thereof so far as such matters are not herein defined and set forth.

And also from time to time in like manner to annul, repeal, or alter any existing rule, regulation, or byelaw; and to make new rules, regulations, and byelaws in reference to all or any of such matters. And all such rules, regulations, and byelaws shall continue in force until repealed by the Governor by some writing under the Public Seal of the Colony, or by some valid byelaw established by the Gold Commissioner and Mining Board of some district under the provisions herein-after contained.

Gold escort  
deposit.

XIII. It shall be lawful for his Excellency the Governor, by a notification under the Public Seal of the Colony, to make provisions for the custody and carriage of gold at and from and between such points as may be thought proper, and to establish such rates of charge for the carriage and custody of gold as shall be deemed expedient, and in like manner to change and alter any or all of such provisions and charges.

Custody to be  
on the same  
footing as post  
office letters.

XIV. The custody and care of all deposits, whether for custody or transport so undertaken by or on behalf of the Government, shall be under the like responsibility as that under which letters are received and carried by the Post Office. And in case of any loss or dispute concerning any such deposit the property in the same may in any proceedings or suits or actions at law be stated as being in the Colonial Treasurer for the time being. And all clerks and persons employed by or on behalf of the Government, or acting in the capacity of being so employed in reference to any such deposit, shall in case of neglect or misfeasance, be liable in the same manner as if they had been clerks or acting as clerks in the Post Office, *mutatis mutandis*.

Jurisdiction of  
Gold Commis-  
sioners.

XV. And as to the power and jurisdiction of and proceedings before a Gold Commissioner, I do hereby enact, proclaim, and declare as follows; viz.,

Every Gold Commissioner shall have and exercise during his term of office all the authority and jurisdiction of a Justice of the Peace for British Columbia, in addition to his proper authority as Gold Commissioner. Any claim, mine, ditch, or water privilege situate, as to part thereof, within the express limits of same Gold Commissioner's jurisdiction, and as to other part thereof not within the express limits of any Gold Commissioner's jurisdiction, shall be deemed to be wholly within the jurisdiction within which any part of such claim, mine, ditch, or water privilege shall be situated. In the case of any claim, mine, ditch, or water privilege situate at more than a distance of ten miles from the office or any Gold Commissioner, any Justice of the Peace for British Columbia, although not otherwise specially empowered to act as a Gold Commissioner, is hereby authorized, or as the case may be, required to do any act herein authorized or required to be done by a Gold Commissioner.

And wherever the ditch or other property in respect whereof any question may arise shall be situated partly in one district and partly in another, or when it shall be doubtful within whose jurisdiction the same or any part thereof shall be totally situated, any Gold Commissioner in the neighbourhood before whom the complaint or matter shall be first brought shall have jurisdiction. In every case in which a Justice of the Peace not being also a Gold Commissioner shall act as a Gold Commissioner under this clause, he shall with all convenient speed communicate the particulars of his acting to the Chief Gold Commissioner, and if there shall be no Chief Gold Commissioner, then to the nearest Gold Commissioner.

All mining dis-  
putes may be  
decided by the  
Gold Commis-  
sioner without  
limit in value.

XVI. All disputes relating to the title to any mine or claim, or to any part of the proceeds thereof, or relating to any ditch or water privilege, or to any contract for labour to be done in respect of a ditch or water privilege, mine, or claim, or relating to the mode of carrying on the same, or any of them, and all disputes concerning partnerships in any mine or claim may be investigated, in the first instance, before the Gold Commissioner having jurisdiction as aforesaid, without any limit to the value of the property or subject-matter involved in such dispute.

Except in cases  
of partnerships.

XVII. Provided always, that no Gold Commissioner shall have jurisdiction in civil disputes between partners, unless it shall, in the first place, be shown to his satisfaction that the joint stock of the partnership is under the value of 20*l*.

Appeal to the  
Supreme Court  
in B. C. in cri-  
minal and sum-  
mary cases.

XVIII. Any person convicted under this Proclamation of any offence against the same or any byelaw, rule, or regulation hereby authorized, and sentenced to any term of imprisonment beyond thirty days, or to pay any fine beyond 20*l*. over and above the costs of summary conviction, may appeal to the next assizes to be holden for the district or place wherein the cause of complaint shall have arisen, provided that such person, at the time of such conviction, or within forty-eight hours thereafter, enter into recognizance with two sufficient sureties, conditioned personally to appear at the said assizes to try such appeal, and to abide the further judgment of the Court at such assizes, and to pay such costs as shall be by such last-mentioned Court awarded. And the convicting Gold Commissioner may bind over any witnesses or informant, under sufficient recognizances, to attend and give evidence at the hearing of such appeal, and the costs of such witnesses shall be allowed and paid by the Colonial Treasurer in the first instance, and, if such appeal be dismissed, shall be repaid to the Colonial Treasurer by the appellant.

No merely for-  
mal objections  
allowed.

XIX. On any such appeal no objection shall be allowed to the conviction on any matter of form or insufficiency of statement, provided it shall appear to the said Supreme Court that the defendant has been sufficiently informed of the charge to be made against him, and that the conviction was proper on the merits of the case.

Appeal in civil  
cases over 20*l*

XX. If either party in any civil cause where the subject-matter in dispute is more than 20*l*. shall be dissatisfied with the determination, he may appeal from the same to the Supreme Court of Civil Justice in British Columbia, provided that the appealing party shall, within four days of the determination appealed from, give notice of such appeal to the other party, and also give security, to be approved by the Gold Commissioner, for the costs of the appeal, and also for the amount payable by the appealing party under the judgment appealed against. And the said Court of Appeal may either order a new trial on such terms as it shall think fit, or order judgment to be entered for either party, or try the cause *de novo*, and may make such order as to the costs of the appeal as such Court shall think proper, and such appeal may be in the form of a case settled and signed by the parties or their attorneys, and if they cannot agree,



the said Gold Commissioner may settle and sign the same upon being applied to by the parties or their attorneys.

XXI. In any case of any cause relating to a mine, claim, or ditch being brought in the first instance before the Supreme Court of Civil Justice of British Columbia, wherein the sum of damages sought to be recovered shall be less than 50*l.*, it shall be lawful for the Court, after issue joined, to direct the cause to be tried before any Gold Commissioner whom the Court shall name, and upon such terms as the Court shall think fit.

XXII. The Gold Commissioner alone without a jury shall be the sole judge of law and fact.

XXIII. The Gold Commissioner shall have the power to cause such parties and witnesses as he shall think proper to attend on any proceedings before him, and to compel the production of documents on any such proceedings.

XXIV. The Judge of the Supreme Court of Civil Justice shall, with the advice and consent of the Chief Gold Commissioner or of any two Gold Commissioners, have the power, from time to time, to make, repeal, and alter such rules and regulations for the conduct of the business before the Gold Commissioners for the times of proceeding, and also such lists of costs of proceedings as he shall think fit: Provided always, that all such rules, regulations, and lists of costs shall, within one calendar month from the making thereof, be laid before his Excellency the Governor.

And it shall not be necessary for the Gold Commissioner in any proceedings before him to follow any set forms, provided that the substance of the things done and to be done be therein expressed; nor shall any proceedings before any Gold Commissioner be liable to be set aside for any want of form, so long as matters of substance have not been omitted.

XXV. It shall be lawful for a Gold Commissioner in case of any dispute between partners in any claim, ditch, mine, or water privilege, where the joint or partnership stock shall be shown not to exceed the value of 200*l.*, but not in other cases, to decree a dissolution of partnership and a sale or valuation or division of the partnership stock, and to direct the partnership account to be taken before himself, and declare what amount, if any, is due on the whole account by one partner to another, and generally to make such order and give such directions therein as he shall think fit, and to take such steps (if any) as he may deem expedient in the way of taking security, or appointing a receiver or otherwise for securing the partnership property in the meantime.

XXVI. It shall be lawful for any Gold Commissioner, upon complaint made of any wrongful encroachment on a claim, mine, ditch, or water privilege, and deposit made of 2*l.* in his hands by the complainant, to proceed forthwith to the place at which such alleged encroachment has been made, and there and then to demand the like sum of 2*l.* from the party complained of, and thereafter, on view of the premises, and on such evidence as to such Gold Commissioner shall seem sufficient, to hear and determine the dispute in a summary way, and whether all parties in difference shall appear or not, and in a summary way to cause such encroachment to be abated, and to restore to the person who shall appear to be entitled thereto full possession of the claim, ditch, or other matter encroached upon, or alleged so to be, and also all gold or other property (if any) which may have been unlawfully taken or removed. And also to award such damages as the nature of the case shall seem to require. And if each party shall have deposited the said sum of 2*l.*, he shall restore the said sum of 2*l.* to the party whom he shall judge to have been in the right, and retain the other 2*l.* as and for costs of court, and if either party make default in appearance the Gold Commissioner may make such order as to costs as shall seem to him proper.

Provided always, that it shall be lawful for the Gold Commissioner, if in his discretion the matter shall not be made clear for a final determination, to take such steps as he shall then think necessary for the preservation of the matter in dispute, and to adjourn the final decision of the case until such time as he shall think proper.

XXVII. It shall be lawful for the Gold Commissioner to mark out for the use of any registered free miner in his district a space of land not exceeding five acres, to be occupied as garden ground or for a residence. The right conferred by such occupation shall only endure so long as the occupier shall be a registered free miner of the district, and for such further period as shall be requisite for the enjoyment of any crop standing thereon at the period when he shall cease to be a registered free miner.

And for attending and marking out such land, whatever be the size, the Gold Commissioner shall be entitled to demand the sum of ten shillings for the use of Her Majesty, Her heirs and successors.

XXVIII. It shall be lawful for the Gold Commissioner to mark out for the use of any person intending to carry on temporarily any trade on or near a mine, a plot or plots of waste Crown land convenient for that purpose, and also for garden purposes, not being larger than one acre. There shall be thereby conferred enjoyment for so long as such trader shall pay all licence duties in respect thereof, and also the right to any crop standing thereon at the last payment of licence duties.

Provided always, that the land on or near any mine so marked out for any of the purposes mentioned in this or the last section shall always be resumable by the Crown, and applicable to general mining purposes, on six months' notice thereof being given by the Gold Commissioner to any occupier thereof.

And as to mining boards, I do enact, proclaim, and declare as follows; viz.,

XXIX. Upon petition signed by not less than one hundred and one registered free miners in any district, having been on the register of such district for at least three months previous to signing such petition, and holding *bonâ fide* claims not abandoned nor forfeited, and upon a certificate from the Gold Commissioner of such district testifying to the number and good faith of the petitioners, it shall be lawful for his Excellency the Governor, by a notification under his hand and seal, to direct the Gold Commissioner acting in and for such district to constitute therein a local board, to be called "The Mining Board," in the manner and with the powers herein-after expressed.

XXX. The Mining Board shall consist of not less than six nor more than twelve of the general body of the voters of such district, according to the following scale, viz.; if there shall be not more than one hundred and fifty voters, then the Mining Board shall consist of six members; and for every complete number of fifty voters beyond the first one hundred and one, the Mining Board shall comprise one additional member, but not so as to consist of more than twelve members.

Cases under 50*l.* may be referred to the Gold Commissioner.

Gold Commissioner to be judge of law and fact.

Power to summon witnesses.

Forms of proceedings, costs, &c.

Jurisdiction as to mining partnerships

Summary power to abate encroachments, &c.

Costs.

Gardens, &c for free miners, not more than five acres.

Plots for traders, not more than one acre.

Mining Boards, Constitution of.

Six to twelve members, according to the number of registered free miners.



BRITISH  
COLUMBIA.Voter's qualifi-  
cation.Gold Commis-  
sioner to be re-  
turning officer,  
&c.Vacancy of  
membership.Three to retire  
annually.Elections to  
take place in  
January.Power to make  
byelaws, &c.,  
which must be  
approved by  
the Governor.

Evidence.

Majorities.

Mode of con-  
ducting pro-  
ceedings.Power to the  
Governor to  
dissolve any  
mining board.Interim acts to  
continue not-  
withstanding  
dissolution.Irregularities  
not to affect  
such Acts.Certain  
offences.

Felony.

Summary  
power in cases  
of disobedience.

Short title.

The members shall be elected by the votes of the registered free miners of the district who shall have been on the register during three months at the least previous to the election, each voter to have as many votes, and no more, as there are members of the board to be elected or vacancies to be filled up, which he may distribute among the candidates as he may think fit.

XXXI. The votes of the electors shall be given by word of mouth, and in person, by the voter. The Gold Commissioner of the district shall be the receiver and examiner of votes, and the returning officer; and the first election shall take place on such day as his Excellency the Governor may appoint.

The Mining Board shall meet together at such intervals as shall be appointed by the Gold Commissioner, and it shall be competent for three or more members meeting together to proceed to the dispatch of business.

XXXII. If any member shall cease to be a registered free miner in the district, or shall be convicted of any misdemeanor or felony, or of any assault, being armed with a lethal weapon, or of any wilful and malicious contravention of this Act, or of any byelaw in force in the district, he shall ipso facto vacate his seat in each case, and not be re-eligible, save that a member vacating his seat only by reason of ceasing to be a registered free miner shall be again eligible at any time upon his again becoming entitled to vote.

Three members of the Board, or so many members as, together with the vacancies caused as aforesaid, shall make up three members, shall retire annually, by lot, or agreement, or seniority. Retiring members shall be immediately re-eligible.

XXXIII. All vacancies in the Board shall be supplied, and the full number of members for the time being due to the district according to the tariff aforesaid, shall be made up at a general election, to take place on such day in the month of January in each year as his Excellency the Governor shall from time to time, by notice under the Public Seal of the Colony, direct.

XXXIV. The Mining Board shall, subject to the provisions hereof, have power by resolution to make byelaws, and also from time to time to alter and repeal any existing byelaws for regulating the size of claims and sluices, the mode in which claims may be registered, worked, held, and forfeited, and all other matters relating to mining matters in their district: Provided that no such new byelaw, repeal, or alteration shall be of any force unless and until it shall have been approved of by his Excellency the Governor.

Provided further, that every such byelaw, repeal, or alteration, being duly made and approved, and not being contrary to the Statute or Common Law, and not being contrary to natural equity, shall be admitted in all Courts of British Columbia as a good local law, and a copy thereof extracted from the bye-laws, and purporting to be signed by the Gold Commissioner of the district, shall be good evidence thereof, and that the same have been lawfully made and were in full force at the time in such copy or extract in that behalf specified.

XXXV. Any resolution of such Mining Board and Gold Commissioner may be passed by a bare majority of the members of such Board, if the Gold Commissioner shall consent thereto, or by two-thirds of the members of such Board if the Gold Commissioner shall not consent thereto. The Gold Commissioner shall, within seven days of the passing of any resolution concerning any byelaw or general regulation which he shall on any grounds deem expedient to lay before his Excellency the Governor, make and send to his Excellency a fair copy thereof, signed by such Gold Commissioner, with his opinion thereon.

XXXVI. The votes on all resolutions of the Mining Board shall be given by the members personally, and by word of mouth.

All questions of order and of the time and manner of conducting the business at such Mining Board, and of the times and places of meeting after the first meeting thereof, and of the propriety of elections and qualifications and disqualifications of members subject hereto, may be decided by the Gold Commissioner, either from time to time, as any question shall arise, or by any fixed rules and orders as may be thought advisable, and which such Gold Commissioner is hereby authorized to make by writing under his hand and seal.

XXXVII. It shall be lawful for his Excellency the Governor, by an order the Public Seal of the Colony, at any time to declare the Mining Board in any district dissolved, as from a day to be named in such order, and if no day be therein named in that behalf, then as from the date of such order. And from and immediately after such dissolution the power to make and repeal byelaws, rules, and regulations shall immediately be vested in the Governor, in the same manner as if such Mining Board had never been constituted.

Provided always, that notwithstanding any such dissolution all bye-laws and working rules and regulations (if any), and all other acts (if any) made, done, and established in the meantime, under the authority of this Proclamation, shall be valid until the same be altered or repealed by the Governor by some order under the Public Seal of the Colony.

XXXVIII. The acts of any Mining Board previous to such dissolution, if sanctioned as aforesaid, shall be valid, notwithstanding any informality or irregularity in the mode of election, or of meeting of such Mining Board, or in the passing of any of such Acts.

XXXIX. Any person who shall wilfully and maliciously damage or destroy any free miner's certificate, or fraudulently fill up, or post date, or alter any name or date or other particular in a free miner's certificate, or in any document purporting to be a free miner's certificate, or who shall falsely pretend that he is the person named in any such certificate or document, or who shall wilfully and maliciously damage, destroy, or falsify any of the records and registers hereby directed to be kept, shall be guilty of felony, and being duly convicted thereof shall be liable, at the discretion of the court, to penal servitude for not more than ten years.

XL. Any person wilfully or unlawfully acting in contravention of this Act, or of any byelaw, rule, or regulation to be established by virtue of this Act, or refusing to obey any lawful order of the Gold Commissioner, shall, on being summarily convicted before any Justice of the Peace or Gold Commissioner, be liable to a fine not exceeding 50*l.*, or to an imprisonment not exceeding three months.

XLI. This Proclamation may in any proceedings be referred to as the "Gold Field Acts, 1859."

XLII. This Proclamation shall come into force as to Queen Charlotte's Island on the 1st of January 1860, and as to the rest of British Columbia on the 1st of September 1859.

BRITISH  
COLUMBIA

Issued under the Public Seal of the Colony of British Columbia, at Victoria, Vancouver's Island, this Thirty-first day of August, in the year of our Lord one thousand eight hundred and fifty-nine, in the Twenty-third year of Her Majesty's reign, by me,

Commence-  
ment of Act.

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,

Acting Colonial Secretary.

GOD SAVE THE QUEEN.

Enclosure 8 in No. 25.

Encl. 8 in  
No. 25.

#### RULES and REGULATIONS for the Working of Gold Mines.

Issued in conformity with the Gold Fields Act, 1859.

WHEREAS it is provided by the Gold Fields Act, 1859, that the Governor for the time being of British Columbia may, by writing under his hand and the Public Seal of the Colony, make rules and regulations in the nature of byelaws for all matters relating to mining: Now, therefore, I, James Douglas, Governor, &c., do hereby make the following rules and regulations accordingly:

I. In the construction of the following rules and regulations, unless there be some contrariety or repugnancy thereto in the context, the words "Governor," "Gold Commissioner," "Mine," "to mine," shall have the same meanings as in the Gold Fields Act, 1859. The expression "Bar diggings" shall mean every mine over which a river extends when in its most flooded state. "Dry diggings" shall mean any mine over which a river never extends. "Ravines" shall include watercourses whether usually containing water or usually dry. "Ditch" shall include a flume or race, or other artificial means for conducting water by its own weight into or upon a mine. "Ditch head" shall mean the point in a natural watercourse or lake, where water is first taken into a ditch. And words in the singular number shall include the plural, and the masculine gender shall include the feminine.

II. All claims are to be, as nearly as may be, in rectangular forms, and marked by four pegs at the least, each peg to be four inches square at the least and one foot above the surface, and firmly fixed in the ground. No boundary peg shall be concealed or moved or injured without the previous permission of the Gold Commissioner.

III. The size of a claim, when not otherwise established by a byelaw, shall be, for bar diggings, a strip of land 25 feet wide at the mark to which the river rises when flooded, and thence extending down direct into the river indefinitely. For dry diggings, a space 25 feet by 30 feet. For ravine diggings, a space of 25 feet along the bank of the ravine and extending up to the top of each bank. In quartz claims the size, when not otherwise established by byelaw, shall be 100 feet in length, measured along the vein or seam, with power to the miner to follow the vein or seam and its spurs, dips, and angles, anywhere on or below the surface included between the two extremities of such length of 100 feet, but not to advance upon or beneath the surface of the earth more than 100 feet in a lateral direction from the main vein or seam, along which the claim is to be measured. All measurements of area are to be made on the surface of the earth, neglecting inequalities. Every claim is to have a distinguishing number marked on its boundary pegs.

IV. If any free miners, or party of free miners, shall discover a new mine, and such discovery shall be established to the satisfaction of the Gold Commissioner, the first discoverer or party of discoverers, if not more than two in number, shall be entitled to a claim double the established size of claims in the nearest mine of the same description (*i.e.* dry, bar, or quartz diggings). If such party consist of three men, they shall collectively be entitled to five claims of the established size, on such nearest mine, and if of four or more men, such party shall be entitled to a claim and a half per man. A new stratum of auriferous earth or rock, situate in a locality where the claims are abandoned, shall for this purpose be deemed a new mine, although the same locality shall previously have been worked at a different level. And dry diggings discovered in the neighbourhood of bar diggings shall be deemed a new mine, and *vice versa*.

V. The registration of claims shall be in such manner and form as the Gold Commissioner shall in any locality direct, and shall include, besides the matters mentioned in the Gold Fields Act of 1859, all such other matters as the Gold Commissioner shall think fit to include.

VI. No transfer of any claim or any interest therein shall be enforceable, unless the same or some memorandum thereof shall be in writing, signed by the party sought to be charged, or by his lawfully authorized agent, and registered with the Gold Commissioner.

VII. Any person desiring any exclusive ditch or water privilege shall make application to the Gold Commissioner having jurisdiction for the place where the same shall be situated, stating for the guidance of the Commissioner, in estimating the character of the application, the name of every applicant, the proposed ditch head and quantity of water, the proposed locality of distribution, and if such water shall be for sale, the price at which it is proposed to sell the same, the general nature of the work to be done, and the time within which such work shall be complete; and the Gold Commissioner shall enter a note of all such matters as of record.

VIII. Unless otherwise specially arranged, the rent to be paid for any water privilege shall be in each month one average day's receipts from the sale thereof, to be estimated by the Gold Commissioner with the assistance, if he shall so think fit, of a jury.

IX. If any person shall refuse or neglect to take within the time mentioned in his application, or



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COLUMBIA.

within such further time (if any) as the Gold Commissioner may, in his discretion, think fit to grant for the completion of the ditch the whole of the water applied for, he shall, at the end of the time mentioned in his application, be deemed entitled only to the quantity actually taken by him, and the Gold Commissioner shall make such entry in the register as shall be proper to mark such alteration in the quantity, and may grant the surplus to any other person according to the rules herein laid down for the granting of water privileges.

X. Every owner of a ditch or water privilege shall be bound to take all reasonable means for utilizing the water granted to and taken by him. And if any such owner shall wilfully take and waste any unreasonable quantity of water, he shall be charged with the full rent as if he had sold the same at a full price. And it shall be lawful for the Gold Commissioner, if such offence be persisted in, to declare all rights to the water forfeited.

XI. It shall be lawful for the owner of any ditch or water privilege to sell and distribute the water conveyed by him to such persons, and on such terms as they may deem advisable, within the limits mentioned in their application: Provided always, that the owner of any ditch or water privilege shall be bound to supply water to all applicants, being free miners, in a fair proportion, and shall not demand more from one person than from another, except when the difficulty of supply is enhanced; provided further, that no person, not being a free miner, shall be entitled to demand to be supplied with water at all.

XII. A claim on any mine shall, until otherwise ordered by some valid byelaw, be deemed to be abandoned, and open to the occupation of any free miner, when the same shall have remained unworked by some registered holder thereof for the space of seventy-two hours, unless in case of sickness, or unless before the expiry of such seventy-two hours a further extension of time be granted by the Gold Commissioner, who may grant further time for enabling parties to go prospecting, or for such other reasonable cause as he may think proper. Sundays, and such holidays as the Gold Commissioner may think fit to proclaim, are to be omitted in reckoning the time of non-working.

XIII. Whenever it shall be intended, in forming or upholding any ditch, to enter upon and to occupy any part of a registered claim, or to dig or loosen any earth or rock within [4] feet of any ditch not belonging solely to the registered owner of such claim, three days' notice in writing of such intention, shall be given, before entering or approaching within four feet of such other property.

XIV. If the owner of the property about to be so entered upon or approached shall consider three days' notice insufficient for taking proper measures of precaution, or if any dispute shall arise between the parties as to the proper precautionary measures to be taken, or in any other respect, the whole matter shall be immediately referred to the Gold Commissioner acting in the district, who shall order such interval of time to be observed before entry, or make such other order as he shall deem proper.

XV. In quartz claims and reefs each successive claimant shall leave three feet unworked to form a boundary wall between his claim and that of the last previous claimant, and shall stake off his claim accordingly, not commencing at the boundary peg of the last previous claim, but three feet further on; and if any person shall stake out his claim disregarding this rule, the Gold Commissioner shall have power to come and remove the first boundary peg of such wrongdoer three feet further on, notwithstanding that other claims may then be properly staked out beyond him: so that such wrongdoer shall then have but ninety-seven feet. And if such wrongdoer shall have commenced work immediately at the boundary peg of the last previous claim, the Gold Commissioner may remove his boundary six feet further on than the open work of such wrongdoer; and all such open work, and also the next three feet of such space of six feet shall belong to and form part of the last previous claim, and the residue of such space of six feet shall be left as a boundary wall.

XVI. Every such boundary wall shall be deemed the joint property of the owners of the two claims between which it stands, and may not be worked or injured, save by the consent of both such owners.

XVII. In staking out plots of land for free miners and traders for gardening and residential purposes, under the powers in the said Gold Fields Act, 1859, contained, the Gold Commissioner is to keep in view the general interests of all the miners in that locality, the general principle being that every garden benefits indirectly the whole locality, and also that the earlier application is to be preferred; but where the eligible spots of land are few, or of scanty dimensions, and especially where they are themselves auriferous, it may be injudicious that the whole or the greater part should fall into the hands of one or two persons; and therefore, in such cases, the Gold Commissioner may, in the exercise of his discretion, allot small plots only to each applicant.

XVIII. Any person desiring to acquire any water privilege shall be bound to respect the rights of parties using the same water, at a point below the place where the person desiring such new privilege intends to use it.

XIX. Any person desiring to bridge across any stream or claim or other place for any purpose, or to mine under or through any ditch or flume, or to carry water through or over any land already occupied by any other person, may be enabled to do so in proper cases, with the sanction of the Gold Commissioner. In all such cases the right of the party first in possession, whether of the mine or the water privilege, is to prevail, so as to entitle him to full compensation and indemnity. But wherever due compensation by indemnity can be given, and is required, the Gold Commissioner may sanction the execution of such new work on such terms as he shall think reasonable.

#### AS TO LEASES IN LARGER PROPORTIONS THAN CLAIMS.

XX. Applications for leases are to be sent in triplicate to the Gold Commissioner having jurisdiction for the locality where the land desired to be taken is situated. Every such application shall contain the name and additions of the applicant at full length, and the names and addresses of two persons residing in the colony of British Columbia or Vancouver Island, to whom the applicant is personally known. Also a description accompanied by a map of the land proposed to be taken.

XXI. Leases will not be granted in general for a longer term than ten years, or for a larger space than ten acres of alluvial soil (dry diggings), or half a mile in length of unworked quartz reef, or a mile

and a half in length of quartz, that shall have been attempted and abandoned by individual claim workers, with liberty to follow the spurs, dips, and angles on and within the surface, for two hundred feet on each side of the main lead or seam, or, in bar diggings half a mile in length (if unworked) along the high-water mark, or a mile and a half in length along high-water mark, where the same shall have been attempted and abandoned by individual claim workers.

XXII. Leases as above will not in general be granted of any land, alluvium, or quartz, which shall be considered to be immediately available for being worked by free miners as holders of individual claims. Nor will such a lease in any case be granted where individual free miners are in previous actual occupation of any part of the premises unless by their consent.

XXIII. Every such lease shall contain all reasonable provisions for securing to the public rights of way and water, save in so far as shall be necessary for the miner-like working of the premises thereby demised, and also for preventing damage to the persons or property of other parties than the lessee. And the premises thereby demised shall be granted for mining purposes only, and it shall not be competent for the lessee to assign or sub-let the same, or any part or parts thereof, without the previous licence in writing of the Gold Commissioner. And every such lease shall contain a covenant by the lessee to mine the said premises in a miner-like way, and also, if it shall be thought fit, to perform the works therein defined within a time therein limited. And also a clause by virtue whereof the said lease and the demise therein contained may be avoided in case the lessee shall refuse or neglect to observe and perform all or any of the covenants therein contained.

XXIV. Every applicant for a lease shall at the time of sending in his application mark out the ground comprised in the application, by square posts firmly fixed in the boundaries of the land, and four feet above the surface, with a notice thereon that such land has been applied for, stating when and by whom, and shall also fix upon a similar post at each of the nearest places on which miners are at work a copy of such notice.

XXV. Objections to the granting of any such lease shall be made in writing, addressed to his Excellency the Governor, under cover to the Gold Commissioner, who shall forward all such objections, together with his report thereon.

XXVI. Every application for a lease shall be accompanied by a deposit of twenty-five pounds sterling, which shall be refunded in case the application shall be refused by the Government, and if the application shall be entertained, then such sum of twenty-five pounds shall be retained for the use of Her Majesty, Her heirs and successors, whether the application be afterwards abandoned or not.

Issued under the Public Seal of the colony of British Columbia, at Victoria, Vancouver Island, this Seventh day of September, in the year of our Lord One thousand eight hundred and fifty-nine, and in the Twenty-third year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

By Command of his Excellency,  
WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

### No. 26.

COPY of DESPATCH from Governor DOUGLAS, C.B. to his Grace the  
DUKE of NEWCASTLE.

No. 26.

(No. 224.)

Victoria, Vancouver's Island, October 18, 1859.

MY LORD DUKE,

(Received December 19, 1859.)

SINCE I had last the honour of addressing your Grace, on the 13th of September, I have been engaged in making an official tour in British Columbia, in the course of which I visited the towns of New Westminster, Langley, Douglas, Fort Hope and Yale, travelled through the passes of Fraser's River to Spuzzem, and inspected all the mining districts west of that place.

2. In my progress through the country I have had opportunities of conversing familiarly with the people; of ascertaining, by personal intercourse, their wants and views, their real and fancied grievances, and of studying practically the best means of promoting the settlement and permanent interests of the colony.

3. I more especially directed my inquiries into the working of the "Gold Fields Act," which came into operation in the month of August last, and was much gratified to find that the Act had been received with satisfaction, and met the approval of the mining population of the colony.

4. It has, however, some objectionable features which will require amendment. The small size of the bar and bank claims prescribed by the Act, the former limited to 25 feet frontage on the banks of great rivers, and the latter to a space of 25 by 30 feet, was perhaps the most general, and almost the only serious, objection made to it; and it must be admitted that the objection applies with great force to ground which has already been worked over, and to places where the pay-streak is thin and deeply covered with soil, which the miner has to remove, at a great expense, before the gold can be obtained.

5. There was a general feeling last year among the miners in favour of the minute subdivision of the mining ground into distinct claims; but that feeling no doubt arose from the greater number of miners in the field, the limited extent of the then known auriferous districts, and the natural desire of each to possess a separate mining claim.



The revenue is so largely benefited by that subdivision, as each mining claim is required to pay an annual charge of 1*l.* sterling into the Colonial Exchequer, that the principle was without hesitation, and for that reason only, adopted in the "Gold Fields Act."

6. In constructing that Act it was foreseen that no mining law, however comprehensive, could be made applicable to the wants and circumstances of an extensive country like British Columbia, and the expedient was therefore resorted to of providing for the establishment of elective mining boards in every district, with power to frame bye laws regulating the size of claims, and otherwise of adapting the provisions of the General Act to the particular circumstances of each mining district.

7. Until the mining boards are constituted the Assistant Gold Commissioners are empowered to grant relief in all cases of real hardship, or whenever the public or the interests of individual miners may be endangered through the rigid enforcement of the Act; and it was also decided that in certain cases where miners have incurred much preliminary outlay on account of their claims, that the same person may be allowed to hold more than one mining claim, under a lease from the Crown, and at a rental equal to the revenue accruing to the colony from an equal number of mining claims held by different persons; an arrangement which gave general satisfaction, and will, I have no doubt, remove all cause of complaint in respect to the extent of mining claims.

8. I met, in the course of my journey, with roving miners from every part of British Columbia, and ascertained from them many interesting facts connected with the gold districts. Last year an impression was generally entertained by the miners that the gold deposits had been made by Fraser's River, and that the gold was brought down by the stream from a source existing somewhere in the main range of the Rocky Mountains; they have since discovered that not only the bed, but also the higher banks of the Fraser, which rise terrace-like, one above the other, as they recede towards the hills on either side, are composed of auriferous earth and beds of water-worn gravel; a circumstance that has led them, not illogically, to the conclusion that the river occupied at some former period a much higher level than its present bed, and that the water has been drained off by its gradual deepening, through the natural process of attrition or by volcanic agency.

9. Alluvial diggings of extraordinary value have been discovered on Quesnel River, a tributary which flows into the Fraser about 50 miles beyond Alexandria. Some adventurous miners have ascended this stream as far as the lake of the same name from which it rises, and have been rewarded with rich strikes, as much, it is reported, as 40*l.* a day having been made to the hand; but instances of such good fortune are uncommon. One circumstance, however, which deserves to be recorded, and which is established almost beyond a doubt, through the concurring testimony of the miners who have seen the country, is the fact that the channels of Fraser's River, to a distance of 150 miles beyond Fort George, the extreme point to which they have been yet prospected, are found to be auriferous, yielding on every bar from 20*s.* to 25*s.* a day to the hand.

10. I fell in with three persons who left St. Paul's, Minnesota, some time last year; they passed the winter in the Rocky Mountains, continued their journey westward in the spring, and struck the south branch of Fraser's River near "Tête Jauné's Cache." They saw many veins of quartz on the western slopes of the mountains, and beds of reddish earth, which in California are considered a sure indication of the presence of gold; they prospected the banks of the South Fraser as they dropped down the stream in a rudely formed canoe, and were nowhere disappointed in finding gold in highly remunerative quantities.

11. The district between Yale and Lytton abounds in rich bank and bar diggings. Mr. M'Gill, a respectable merchant residing at Fort Yale, assured me that he once saw 71 ounces of gold dust taken out of one mining claim at Boston Bar by three men in 24 hours, and that the same claim yielded regularly from 48 to 50 ounces of gold a day for about four weeks, when the holders were driven out by a sudden rise in the river, the claim being only accessible at extreme low water for about four weeks in the year.

12. The miners also report the presence of gold in the various little streams between Pavillon and Alexandria, and, in short, believe that there is gold in almost every part of the country.

13. Two veins of gold-bearing quartz were discovered by a party of Cornish miners near Fort Hope, during the time I remained at that place, and the discoverers, who entertain sanguine hopes of success, intend to work them as rapidly as their scanty means will permit.

14. The district between Hope and Yale is not so populous as last year, the present mining population consisting of about 600 persons. The washing is now principally done

by sluicing, which requires fewer men and does much more work than the process of hand-washing. A large amount of capital is invested in ditches, which carry supplies of water for sluicing to every mining bar in this district; the miners, whose operations were previously confined to the bed of Fraser's River, are thus enabled to widen their field of labour by pushing shafts and other mining works into the banks far above the highest water levels of the river. One of those ditches is five miles long, and runs through ground replete with engineering difficulties, which have been overcome with a degree of skill and dexterity, and with a paucity of means, that excites a feeling of admiration at the practical talent and daring enterprise displayed in its construction.

15. When the gold-lead, or pay-streak, is deeply seated, the amount of labour which has to be executed is something almost incredible; the whole of the surface earth, often 25 feet in depth, with its covering of brush and forest trees of enormous size, having to be removed before the treasure can be grasped.

16. There exist extensive dry diggings from Yale upwards towards the Fountain, which for want of water have not been made available for mining; but it is believed that the neighbouring mountains contain abundant sources from whence supplies of water may be brought in; and every inducement will be offered to persons desirous of embarking capital in enterprises of so much public utility, and which are indispensable in the development of the gold fields.

17. The mining population of the district extending from Yale to the Fountain is supposed to exceed 800 men, and about 1,000 men are engaged in the same pursuits between Alexandria, Fort George and Quesnel's River; it is, however, supposed that the miners in the latter district will be compelled by the severity of the weather to abandon it in winter, the cold being then intense, often 20 degrees below zero (Fahrenheit), the rivers frozen, and the ground invariably covered with snow in the months between November and March. Surface mining is therefore impossible at that season, and the miner has no inducement to remain, and possibly has not means enough to purchase a supply of food to keep him until the return of the mining season. Those remarks on the climate apply exclusively to the upper districts of Fraser's River, and not to the country below Alexandria, which enjoys a comparatively mild, dry, and pleasant climate.

18. The value of the present gold exports from British Columbia is estimated at 14,000*l.* a month, or 168,000*l.* per annum; but this estimate does not include the large amount of gold dust remaining in the hands of the miners, nor give a just idea of the whole quantity produced, which no doubt far exceeds the value herein stated.

19. The entire white population of British Columbia does not probably exceed 5,000 men, there being, with the exception of a few families, neither wives nor children to refine and soften, by their presence, the dreariness and asperity of existence.

20. A very marked improvement has taken place since my last visit in the towns of Yale, Douglas, and Hope; the buildings, though entirely of wood, being well and neatly constructed, and it was even more gratifying to observe the growing respectability and quiet orderly deportment of the resident population.

21. In each of those places as well as at New Westminster and Derby, Divine Service is regularly performed by resident clergymen; and the almost total absence of crime shows how usefully and extensively their influence is felt.

22. No schools have been as yet established in the colony; but my attention will be given to the subject of education, and provision made for elementary schools, whenever the wants of the country render them necessary.

23. These facts, carefully selected from the mass of material collected during my late excursion will convey to your Grace an idea of the present social and industrial condition of the colony of British Columbia; and I will now proceed to the notice of other matters of no less importance.

24. The colony is yet destitute of one highly important element, it has no farming class, the population being almost entirely composed of miners and merchants. The attention of Government has been very anxiously directed to the means of providing for that want by the encouragement of agricultural settlers, a class which must eventually form the basis of the population, cultivate and improve the face of the country, and render it a fit habitation for civilized man. The miner is at best a producer, and leaves no traces but those of desolation behind; the merchant is allured by the hope of gain; but the durable prosperity and substantial wealth of states is no doubt derived from the cultivation of the soil. Without the farmer's aid, British Columbia must for ever remain a desert, be drained of its wealth, and dependent on other countries for daily food.



25. The colony has not proved attractive to agricultural settlers. The surveyed country land was all put up to public sale at New Westminster on the 5th and 6th of the present month (October), when four lots only were sold, none of which realized more than the upset price of 10s. an acre, as there was no competition and few purchasers.

26. At Douglas and Hope, various applications were made to me for rural land, by persons who had taken a fancy to the country, and in some instances, made valuable improvements. They asked to be secured in the ownership of any land they might improve, at the upset price of 10s. an acre; and that it should not be exposed to public sale, with a value enhanced by their own labour and outlay, as in that case they would either have to purchase their own improvements or see their property pass into other hands.

27. There was nothing unreasonable in their proposal, and as meeting their views would, I felt assured, have the effect of promoting the settlement of the country; I had every wish to do so, but there was a difficulty in accomplishing the object, for the reason that no country land had been surveyed in those districts, nor could surveys be completed before next year, when the petitioners would probably all have left the colony in disgust. I therefore had recourse to an expedient which fully met the case, without sacrifice to the Government, and to the perfect satisfaction of the public, by issuing a circular addressed to the Assistant Commissioners of Crown lands at Hope, Yale, Douglas, Lytton, and Cayoosh, directing them to permit all persons being at the time British subjects, and all persons who have recorded their intention of becoming British subjects, to hold tracts of unsurveyed Crown land, not being town sites, nor sites of Indian villages, and not exceeding 160 acres in extent, with a guarantee that the same would be fully conveyed to the holder when the land is surveyed, at a price not to exceed 10s. an acre.

28. This is in fact the basis of a pre-emption law founded on occupation and improvement, the Government agreeing on those conditions to convey the land at a fixed price; it being moreover provided that the rights of actual settlers, of those persons only who are found in possession when the land is surveyed will be recognized and allowed. Persons wishing to acquire larger tracts will be required to pay a deposit of 5s. per acre on all land over 160 acres pre-empted for their benefit; a condition intended to serve as a protection to *bonâ fide* settlers, and to prevent speculators from preying on the public, and defeating the proposed object of encouraging the settlement of the country.

29. If that plan should fail in attracting a population I think it will be advisable to resort to the Canadian system of making free grants not exceeding 100 acres of rural land to actual settlers, on condition of their making certain specified improvements.

30. The great object of opening roads from the sea coast into the interior of the country, and from New Westminster to Burrard's Inlet and Pitt River, continues to claim a large share of my attention. The labour involved by these works is enormous; but so essential are they as a means of settling and developing the resources of the country, that their importance can hardly be overrated; and I therefore feel it incumbent on me to strain every nerve in forwarding the progress of undertakings so manifestly conducive to the prosperity of the colony, and which at the same time cannot fail ere long to produce a large increase in the public revenue.

31. We hope to complete the last section of a pack-road leading by the left bank of the Fraser, from Derby to Lytton, a distance of 170 miles, on or before the 1st day of February next. From Lytton a natural pack-road now exists leading to Red River settlement, by the Coutannais Pass, through the Rocky Mountains, and from thence following the valley of the Saskatchewan, chiefly over an open prairie country of great beauty, and replete with objects of interest to the tourist and the sportsman; a settler may then take his departure from Red River in spring with his cattle and stock, and reach British Columbia by that road in course of the autumn following. This is no mere theory, the experiment having been repeatedly made by parties of Red River people travelling to Colvile, from whence there is a good road to Lytton; so much so, indeed, that one of those persons assured me that the whole distance from Lytton to Red River, with the exception of the Coutannais Pass, which is thickly wooded, may be safely travelled with carts. If the Canadian Government would undertake to open a road from Red River to the borders of Lake Superior, which really presents no very formidable difficulties, the connexion between British Columbia and Canada would be complete, and the whole distance might I think, be travelled on British soil.

32. The declared value of British Columbia imports for the quarter ending with the 30th day of September last is 207,848 dollars; and the customs receipts for the same period, amount to 5,202*l.* against 4,242*l.* for the preceding quarter, showing an increase on the latter of 960*l.* A large sum has also been derived from sales of town land, licences

and other sources of revenue, but those returns not having been received must be reserved for a future communication.

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COLUMBIA.

Trusting that these details may not prove unacceptable,

I have, &c.

His Grace the Duke of Newcastle,  
&c. &c. &c.

(Signed)

JAMES DOUGLAS,  
Governor.

No. 27.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

No. 27.

(No. 231.)

Victoria, Vancouver's Island, November 10, 1859.

(Received January 27, 1860.)

(Answered No. 9, February 18, 1860, p. 108.)

MY LORD DUKE,

I HAVE the honour to acknowledge the receipt of Sir Edward Bulwer Lytton's Despatch No. 62,\* of the 7th May, on the subject of the disposal of Crown lands in British Columbia.

2. In my Despatch No. 156,† of the 23rd May, replying to Sir Edward Bulwer Lytton's Despatch No. 16‡, of the 7th February, I stated my full concurrence in regard to the advantages attending the system of prompt payment for land, and we shall, if practicable, without retarding the settlement of the country, introduce the practice into British Columbia.

3. With reference to the reservation of lots at New Westminster for sale in the United Kingdom and the British Colonies, which is discussed in the same Despatch No. 62, I would remark for your Grace's information that it was made with the view of meeting the demand anticipated by the large emigration expected this year from Great Britain and her colonies, and which it was feared might otherwise be deprived of the chance of obtaining lots at New Westminster.

4. It was, however, never intended, nor have we empowered any agents to sell, specific lots either in the United Kingdom or the colonies, otherwise such powers should be recalled, agreeably to the instructions received on this matter.

I have, &c.

His Grace the Duke of Newcastle,  
&c. &c. &c.

(Signed)

JAMES DOUGLAS,  
Governor.

\* Vide papers  
presented Aug.  
1859, p. 86.  
† Page 12.  
‡ Vide papers  
presented Aug.  
1859, p. 78.

No. 28.

COPY of DESTATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

No. 28.

(No. 234.)

Victoria, Vancouver's Island, November 16, 1859.

(Received January 27, 1860.)

MY LORD DUKE,

I HAVE the honour to acknowledge the receipt of your Despatch No. 13\* of August 1859, upon the subject of the postal communication with the colonies of British Columbia and Vancouver's Island.

2. I regret to learn from this Despatch that Her Majesty's Government have decided that the advantages which would be derived by these colonies in the establishment of a direct mail service between San Francisco and British Columbia would not prove equivalent to the large amount of subsidy required for carrying out the undertaking, and that the same reason has precluded the Government from entertaining the proposal for a direct route viâ Canada and Hudson's Bay Company's territory.

3. I observe that hereafter the correspondence for these colonies will be transmitted in closed mails to Her Majesty's Consul at San Francisco who is to forward them by the first opportunity to their destination, and further that your Grace instructs me to endeavour to secure the improvements in the existing mail service which I pointed out as desirable in my Despatch of 5th November 1858.

4. Those improvements pointed chiefly to the establishment of a direct line between this and San Francisco, and I understand your Grace's present instructions as requiring me to ascertain whether such improvements can be obtained under existing circumstances by combination with present arrangements.

5. Heretofore the United States mail steamers were under the obligation of conveying the letters for Vancouver's Island and British Columbia, if properly directed, to Puget

\* Page 98.



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Sound; and, before those steamers touched at Victoria, we received the mail from Puget Sound by any chance opportunity that offered. Since however the gold discoveries in British Columbia, the United States mail steamers have found it to their advantage to call regularly at Victoria, and, through the civility of the post-office authorities in San Francisco, a separate mail bag for Victoria has always been made up and forwarded. The same will probably continue to be the case under the arrangement of sending the closed bags to the Consul at San Francisco, except that the conveyance of the mail to these waters will then become a matter of favour; but I scarcely anticipate any delay, for both the post-office authorities and the officers of the mail steamers are invariably most accommodating and attentive.

6. But under this system your Grace will at once perceive how entirely dependent we are upon United States resources, and subject to the courtesy of United States officials for the receipt of our mails, and that it is in their power at any moment entirely to stop the communication. Another serious inconvenience also attaches to the present system, and that is the almost utter impracticability of replying to correspondence by the same mail; for the steamer arrives at uncertain periods, and generally does not remain more than two hours, so that it frequently happens that the mail is actually not delivered until after she has left the port.

7. For some months past, until very recently, a British screw steam vessel, the "Foxwood," was put upon the line between Victoria and San Francisco, and her owners were very desirous of obtaining the mail contract, for with that prestige and certainty there would have been ample inducement for her continuance. Application was made to me on the subject, but I could only mention the arrangement Her Majesty's Government purposed making in England. The "Foxwood" has I regret to say recently been withdrawn, not being able to compete with the monopoly of the Pacific Mail Steam Ship Company. I learn, however, she is still at San Francisco unemployed, and I am inclined to think that but a trifling inducement would bring her upon the line again, which is much to be desired for many reasons. I have, therefore, carrying out what I believe to be the desire of your Grace, requested the agents of the "Foxwood" to make me an offer of the rate at which they would undertake to perform the mail service between this place and San Francisco; and so soon as a reply is received I will forward it for the consideration of your Grace.

His Grace the Duke of Newcastle,  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

No. 29.

No. 29.

COPY of DESPATCH from Governor DOUGLAS to his Grace the DUKE of NEWCASTLE.

(No. 235.)

Victoria, Vancouver's Island, November 21, 1859.

MY LORD DUKE,

(Received January 27, 1860.)

I HAVE the honour to forward for your Grace's information the copy of a report which I lately received from Mr. William Downie, the same enterprising person who last winter furnished a report, also forwarded with my Despatch No. 123\* of the 25th of March last, on Jarvis Inlet.

\* Vide Papers  
presented Aug.  
1859, p. 70.

2. The report now transmitted relates to the unsuccessful result of the attempt made in the month of July last, by a body of miners from this place, to explore Queen Charlotte's Island.

3. The adventurers, dismayed by the rugged aspect of the country, the humidity of the climate, and the numbers and formidable appearance of the native tribes, did not prosecute the enterprise with resolution or tenacity, and soon returned to this place, with the exception of a few daring spirits, who accompanied Mr. Downie to Fort Simpson, and there made arrangements to explore the course of Skeena River, which flows into the sea at Port Essington, North latitude 54° 15'.

4. The party commenced the ascent of the Skeena in a canoe, which they managed to take on as far as the Forks, a distance of 110 miles from the sea. The river ceases to be navigable at that point, in consequence it is supposed of falls and dangerous rapids; and they had to leave the canoe, and to travel 55 miles by land to the Indian village of "Naas Glee," a celebrated native fishing station, from whence the Skeena again becomes navigable to its source in "Babine Lake," 15 miles beyond "Naas Glee."

5. Babine Lake is a broad and extensive sheet of water, nearly 90 miles in length, with

depth sufficient for vessels of the largest class; and is separated by a low table-land 13 miles in breadth from Stuart's Lake, a feeder of Fraser's River, not quite so large as Barbiue Lake, but otherwise equally well adapted for the purposes of navigation.

6. The report closes with the arrival of Mr. Downie and party, after much suffering and privation, at Fort St. James, Stuart's Lake, where their wants were generously relieved, and themselves hospitably entertained, by the officers of the Hudson's Bay Company.

7. Mr. Downie made several important discoveries in course of his adventurous journey. He found gold in small quantities on the Skeena River; and the mountains, which he had not time to explore, appeared to be of the formation containing gold; he also saw very valuable and extensive beds of coal. He moreover found gold on Stuart's Lake. He describes the country between the Forks and "Naas Glee" as being well adapted for farming, and suitable for the construction of roads. The whole distance from Babine Lake to the sea does not appear to exceed 180 miles, a great part of which is accessible by water.

8. The valley of the Skeena is thus shown to be an available avenue into the interior of British Columbia, and will, I have no doubt, soon become a most important outlet for the upper districts of Fraser's River, which, from the course of the river and the direction of the coast, are brought in close proximity with the sea.

9. As a means of supplying the distant mining districts of British Columbia by a shorter and cheaper route than the valley of Fraser's River, its importance will soon be appreciated and attract the attention of the mining and commercial classes; and I believe that the day is not far distant when steamers will be busily plying on the waters of the two great inland lakes.

10. It appears from the American papers published in Washington territory that rich gold diggings have been very lately found by the men of the United States Boundary Commission on the Shimilcomeen River, and we shall have to turn our attention immediately to that quarter, as the greater part of the Shimilcomeen Valley lies north of the 49th parallel of latitude, and within the limits of this colony.

11. The enclosed clipping from the "Pioneer and Democrat," of the 4th November instant, contains all the information we have yet received relative to that discovery.

I have, &c.

His Grace the Duke of Newcastle.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

Enclosure in No. 29.

Encl. in No. 29.

SIR,

Fort St. James, Stuart's Lake, New Caledonia,  
October 10, 1859.

I BEG to make the following report of my trip to Queen Charlotte's Island, and my journey thence by Fort Simpson to the interior of British Columbia.

I left Victoria on the 27th July with 27 practical miners, having stores, &c., &c., for three months. We arrived in Gold Harbour, Queen Charlotte's Island safely on the 6th August, and immediately set about prospecting, as we expected to see the gold shining in the water. Prospecting.

We examined the spot where a large quantity of gold was formerly taken out, and discovered a few specks of gold in the small quartz seams that run through the slate; two of the party blasting the rock while others prospected round the harbour.

I then proceeded in a canoe to Douglas Inlet, which runs in south of Gold Harbour, hoping to find traces there of the Gold Harbour lead, but without success. The nature of the rock is trap or hornblende, with a few poor seams of quartz straggling over the surface. Granite was found at the head of this inlet, but not a speck of gold could we discover. Next day we went up an inlet to the north of Gold Harbour, and here a white rock showed itself on the spur of a mountain, and like old Californians up we must go to see if this was a place where our fortunes were to be made. After a difficult ascent we found it to be nothing but weather-beaten, sun-dried granite instead of quartz. Further up the inlet we saw a little black slate and some talcose rock, but nothing that looked like gold. On our return we found that the men engaged in blasting the rock had given it up, the few surface specks being all the gold that could be found. The character of the rock is generally trap or hornblende. Nature of the rock.  
No gold.

The large amount of gold that was formerly found with so little difficulty existed in what is called an off-shoot or blow. The question then arises how did the gold get here? Some of our party were of opinion that a gold lead existed close at hand. But it can only be put down to one of the extraordinary freaks of nature so often found in a mineral country. Offshoots of gold.

The off-shoots in question are not uncommon, I have often seen them in California. On such a discovery being made hundreds of miners would take claims in all directions near it, and test the ground in every way, but nothing further could be found, except in the one spot about 70 feet in



BRITISH COLUMBIA.	length, running S.E. and N.W.; on being worked about 15 feet it gave out. Before work commenced I have blown the sand off a vein of pure gold.
Skidegate channel.	I now proposed to test the island further, so we started for the Skidegate Channel. At a village of the Crosser Indians, where we were wind bound, the appearances were more favourable,—talcosc slate, quartz, and red earth; we tried to discover gold but without success. Sulphuret of iron was found in abundance, and we discovered traces of previous prospecting, the Indians understand the search for gold well, and detect it in the rocks quicker than I can.
Sulphuret of iron.	The coast from the Cassiver Indian village to Skidegate Channel is wilder than any I have ever before travelled, and we did not care to hunt for gold in such a place. Five Indians were drowned here to-day while fishing.
Coal formation.	At the Skidegate Channel we found black slate and quartz, travelling further north granite appears and then sandstone and conglomerate, and as we were now in a coal country it was no use to look for gold. We saw coal here, but I cannot speak as to its quality, not being a judge of it. The formation is similar to that of Nanaimo.
Fort Simpson.	From here we returned to Gold Harbour. A party who had remained behind to prospect inland had met with no better success than ourselves. We then consulted what was the best thing to do. I did not wish to return to Victoria, as your Excellency had desired me to explore some of the inlets on the mainland, so I left Gold Harbour with a party of 14 men for Fort Simpson, and arrived there in eight days.
Mouth of Skeena river.	The N.W. coast of Queen Charlotte's island is a low sand and gravel flat, having no resemblance to a gold country. I left Fort Simpson for the Skeena River on the 31st August; from Fort Simpson to Port Essington is about 40 miles. The salt water here is a light blue colour, like the mouth of Fraser River, and runs inland about 30 miles. The coarse-grained quartz of Fort Simpson is no longer seen here, and granite appears; and the banks of the river are low, and covered with small hard wood and cotton trees, with some good-sized white oaks; the first I have seen west of Fraser's River.
Timber.	Vessels drawing more than four feet of water cannot go more than 20 miles up the Skeena River, and it is very unlike the deep inlets to the southward. At our camp here some Indians visited us; they told us they were honest, but next morning the absence of my coat rather negatived their statement.
Depth of water.	Next day we found the river shoal, even for loaded canoes, as it had fallen much. At our next camp I went up a small river, called Scenatoys, and the Indians showed me some crystallized quartz, and, to my surprise, a small piece with gold in it, being the first I have seen in this part. The Indian took me to a granite slide, whence, he asserted, the piece of quartz in question had come from. I found some thin crusts of fine quartz, but no gold. I am of opinion, however, that good paying quartz will be found here. From the River Scenatoys to Port Essington, at the mouth of the Skeena River, is 75 miles; a little below the Scenatoys an Indian trail leads to Fort Simpson; it is through a low pass, and the distance is not great.
River Scenatoys.	From this, 10 miles further up, was a river called the Toes, on the south side; hence is an Indian trail to the Kitloops on the Salmon River. The south branch of Salmon River is called Kittama.
First gold quartz.	By this time we were fairly over the coast range, and the mountains a-head of us did not look very high, the current here was very strong, and much labour required to get our canoe along, and we had to pull her up by a rope from the shore.
Trail to Fort Simpson.	Gold is found here a few specks to the pan, and the whole country look auriferous, with fine bars and flats with clay on the bars; the mountains look red, and slate and quartz can be seen. Next camp was at the village of Kitalaska and I started in a light canoe ahead of my party, as our canoe by all accounts could not get much further, and I then determined to penetrate to Port Fraser.*
River Toes.	The Indian who was with me told me that a large stream called the Kitchumsala comes in from the north; the land on it is good and well adapted for farming; here the Indians grow plenty of potatoes. To the south a small stream called the Chimkoatsh, on the south of which is the Plumbago mountain; I had some in my hand, it is as clear as polished silver, and runs in veins of quartz.
Gold found.	Near to this are the words "Pioneer, H.B.C." on a tree and nearly overgrown with bark; the Indians told me it was cut by Mr. John Waln, a long time ago.
Appearance of the country.	From here to the village of Kitcoonsa the land improves, the mountains recede from the river, and fine flats run away 4 or 5 miles back to their bases, where the smoke is seen rising from the huts of the Indians engaged in drying berries for the winter, which abound here. These Indians were very kind to us, and wished me to build a house there, and live with them.
Kitalaska.	Above the village of Kitcoonsa the prospect of gold is not so good as below, where a dollar a day might be made. As the season was so advanced I was not able to prospect the hills, which look so well about here, and unless the Government takes it in hand it will be a long while before the mineral resources of this part of British Columbia are known. I think this is the best looking mineral contry I have seen in British Columbia. From here to the village of Kitsagatala the river is rocky and dangerous, and our canoe was split from stem to stern.
River Kitchumsala.	At Kitsagatala we entered a most extensive coal country, the seams being in sight and cut through by the river, and running up the banks on both sides, varying in thickness from 3 to 35 feet.
River Chimkoatsh.	The veins are larger on the east side and are covered with soft sandstone, which gives easily to the pick; on the west side quartz lines the seams, which are smaller. The veins dip into the bank for a mile along the river, and could easily be worked by tunnels on the face, or by sinking shafts from behind on the flats, as they run into soft earth.
Plumbago.	I have seen no coal like this in all my travels in British Columbia and Vancouver's Island.
Kitcoonsa.	We experienced some dangers from Indians here, but by a small present of tobacco, and by a determined and unconcerned aspect, I succeeded in avoiding the danger of a collision with them. We could go no further than Kittamarks, the Forks of the Skeena river in the canoe, and we had been 20 days from Fort Simpson, though the journey could have been done in a third of that time.
Fine land.	
Hospitable Indians.	
Mining prospects.	
Most promising part of British Columbia.	
Kitsagatala.	
Coal.	
Depth of seam.	
Breadth of lead.	
Facility of working.	
Dangerous Indians.	
River journey ends.	

\* Supposed to apply to an establishment of the Hudson's Bay Co.

On the 21st September, I left Kittamarks with two white men and two Indians and started over a fine trail and through a beautiful country for Fort Fraser, we crossed over an Indian suspension bridge and entered some first-rate land, our course being about east; we completed about twelve miles to-day. Next day it rained hard, but we succeeded in doing twelve miles, passing through as fine a farming country as one could wish to see. To the south-east a large open space appeared and I have since learnt that a chain of lakes runs away here, being the proper way to Fort Fraser; but as I always follow my Indian guides implicitly, I did so on this occasion. The third day the weather was fine but the trail not so good, it ran along the side of a mountain, but below, the trail was good, and grass abundant. My Indians started after a goat of the mountain but was quickly driven back by three bears. The fourth day we crossed what is called the rocky pass, which may be avoided by keeping the bottom. To the north a chain of mountains could be seen covered with snow, distant about 30 miles, where the Hudson Bay Company have a Post called Bear Fort; to the south is the Indian village Kispyattes, along the bottom runs the Skeena past the village of Allagasomeda, and further up the village of Kithathratts on the same river.

Fifth day we encountered some dangerous looking Indians but we got away from them. We passed through a fine country with cotton trees and good soil.

We now arrived at the village of Naas Glee where the Skeena River rises, we were again on the river we left five days ago, having travelled 55 miles when we might have come by the river. We had great difficulty with the Indians here, and it was fortunate I knew the name of the chief, as otherwise they would have taken all our property; as it was they surrounded us and were most importunate, one wanted my coat, another my gun, a third took my cap from my head; and I really thought they would murder us. These Indians are the worst I have seen in all my travels. Naas Glee is a great fishing station, and all the worst characters congregate here to lead an indolent life, as they live on the proceeds of their salmon fishery. Thousand of salmon were drying at this village.

We hardly knew what to do for they told us it was 10 days to Fort Fraser, and if we returned they would have robbed us of everything; so I determined to go on if the chief Norra would accompany me, and on giving him some presents he consented to do so. I was never so glad to get away from an Indian village, but I am ready to go again and prospect this country if your Excellency wishes it. The river from Naas Glee downwards is very rapid; but as the banks are low and flat a waggon road or railroad could easily be made. The land around Naas Glee is first rate, and wild hay and long grass abound. Potatoes are not grown here, owing to the thieving of the Indians. There is no heavy pine timber hereabouts; the canoes are made of cotton wood.

Above Naas Glee the river was very rapid, and it required all our energy, as we had but a small quantity of dried salmon to last us 10 days. Ten miles above Naas Glee is an old Indian village called Whatatt; here the shoal water ends and we enter the Babine Lake, going through a fine country; we accomplished 20 miles this day; the lake is broad and deep. Next morning, to my surprise, I found a canoe at our camp, with Frenchmen and Indians in charge of Mr. Gavin Hamilton, an officer in the service of the Hudson Bay Company, from Fort St. James Stuart's Lake, New Caledonia, whither we were bound: he was on his way to Naas Glee to purchase fish. He advised me to go back with him to Naas Glee and then to return with him to Stuart's Lake; but as I had seen enough of Naas Glee I refused with thanks. In fact I was very anxious to reach Fort St. James, as I did not wish to be disappointed this time. Mr. Hamilton expressed his surprise that we had managed to get away from Naas Glee, as we were the first white men who had come through this route, and even he found much difficulty with the Indians there. Having persuaded Narra the chief to let us have his canoe, we said farewell to Mr. Hamilton, and proceeded on our journey.

It was fortunate we sent back our two Indians, otherwise we should have suffered from starvation, as it was we reached Stuart's Lake with difficulty. We made a fine run to-day before a fair wind to Fort Killamours, this post is only kept up in the winter. Our course from Naas Glee to this place was S.E. and the distance about 50 miles. The land is good the whole way, with long grass on the benches near the Fort. It is a very lonely place, no sound save your own voice. It seems a great pity to see this beautiful land, so well adapted for the wants of man, lying waste; when so many Englishmen and Scotchmen would be glad to come here and till the soil. Babine Lake is deep and in some places five or six miles wide, there are islands and points of land to afford shelter from the storm, blow whence it may. From Fort Killamours to the head of Babine is about 40 miles direction S.S.E., only from the head down about 20 miles it runs E. and W. We arrived at the head of Babine the seventh day after leaving Naas Glee we had seen no Indians and had made a favourable journey, neither had we seen snow. The country we had passed was well adapted for farming; of course some of the land is rocky but on the whole it is a fine country.

At the head of Babine Lake there is a fine site for a town, and a good harbour could be made; a stream runs down which would supply a town with water. This is what I call the head water of the Skeena River; the lake is navigable for steamers, and 100 miles in length.

From here to Stuart's Lake there is a portage over a good trail, through the finest grove of cotton wood I have ever seen, to Stuart's Lake: the ground was thickly strewn with yellow leaves, giving the scene quite an autumnal appearance, and presenting a picture far different to what we expected in this part of British Columbia.

Six miles from Babine we came to a small lake where were some Indians herring fishing; on our approach they appeared undecided whether to run or remain; I asked them for some food and they soon provided us with some fish, which refreshed us much; having paid for our repast, we started again. From here a small stream runs, a distance of four miles to Stuart's Lake.

Arrived at Stuart's Lake, we found no means of crossing, no Indians to direct us, and no food to sustain us; nor had we any shot to enable us to kill ducks. We camped here three nights without food, sleeping the greater part of the time to stifle our hunger.

The only thing that supported us was the grand idea of the enterprise we were engaged in—that of being the first party to explore the route from the Pacific to Fraser's River, which will one day connect the Atlantic with the Pacific Ocean.

BRITISH  
COLUMBIA.

Commences by  
land.

Fine farming  
country.  
Chain of Lake.

Bears.

Snowy Moun-  
tains.

Indian villages,  
on the Skeena  
river.

Naas Glee.

Great difficulty  
with the  
Indians.

Salmon fishery.

Leave Naas  
Glee.

Character of  
land.

Absence of  
Pine.

Whatatt.

Babine lake

Fort Killamours.

Good land.

Description of  
Babine lake.

Head waters of  
Skeena river.

Portage to  
Stuart's lake.

Arrival at  
Stuart's lake.

Destitute state.



BRITISH  
COLUMBIA.Embark on the  
lake.

Timely succour.

Friendly Indian  
on the lake.Prospect of  
gold.

Good land.

Arrive at Fort  
St. James.Distance from  
Stuart's lake to  
mouth of  
Skeena river.  
Fellow tra-  
vellers.

We had, meantime, to see what could be done to free us from our present difficulties. One of our party found on old canoe split to pieces; this was rigged on a raft of logs as well as circumstances would admit.

I returned to the Indians above mentioned, and purchased a few herrings. I walked back to our camp with difficulty, and found my limbs giving way. Next morning we started on our frail raft, expecting every moment she would go down. We were obliged to sit perfectly still, as the least movement would have upset us. A slight breeze sprung up, and a small sea washed over us: and we had to run for a lee shore, where kind Providence sent an Indian to succour us. He welcomed us with a bonjour, invited us to his lodge, and gave us most excellent salmon trout, taken from the lake. We had at last reached here, with thankful hearts for our preservation through so many dangers. We stayed a night with this Indian, and next day gave him a blanket to take us to the Fort. We abandoned our old canoe without regret, and proceeded towards our destination. The Indians all along here were very kind to us, and seem a good set of people. About half-way across Stuart's Lake we obtained a small prospect of gold. On the north side of the lake, for about 20 miles, the ground is rocky, but south, towards the Fort, the land is as good as can be, and will produce anything.

We reached Fort St. James on the 9th October, and were received by Mr. Peter Ogden with that kindness and hospitality I have always found at the Hudson Bay Company's posts.

The Fort is very much exposed to all the winds, and I found it colder here than anywhere on the journey.

Stuart's Lake is 50 miles long; the portage to Babine 10 miles; Babine Lake 100 miles; from Naas Glee to Fort Simpson 550 miles; and 200 miles from Fort Simpson to Gold Harbour, Queen Charlotte's Island.

The names of the two men who accompanied me were William Manning, an Englishman, and Frank Choteau, a French Canadian. It is possible that I shall prospect the Fraser a little farther this fall.

His Excellency Governor Douglas,  
&c. &c. &c.

I have, &c.,  
(Signed) WILLIAM DOWNIE.

EXTRACT from the "Pioneer and Democrat," 4th November 1859.

From the "Dalles Journal," October 21.

NEW and RICH GOLD DISCOVERIES on the SI-MIL-KA-MEEN RIVER.

An expressman, named McGuire, arrived at the Dalles in the early part of the week from Captain Archer's command, reports the discovery of rich gold diggings on the Si-mil-ka-meen river, about five miles from the camp. According to our informant, the discovery is confined to a small bar on the river, which is being worked by soldiers, quartermaster's men, and a large number of Indians. The men from camp go down after breakfast, walking a distance of five miles, and working not more than half a day, average about \$20 to the hand. This is without the ordinary conveniences for mining, and with nothing but picks, using frying-pans for washing out. With "rockers," it is estimated that from \$50 to \$200 to the hand could readily be taken out. We have not learned that any of the neighbouring bars have been prospected, but it can scarcely be possible that the rich deposits are confined to one locality; and when a thorough examination is had, it is more than likely that rich strikes will be made all along the course of the river. Mr. McGuire, who is represented to us as an entirely reliable man, says that he himself visited the diggings, and saw the miners at work, taking out gold at a rate fully equal to that stated. It is represented that the officers in command are very anxious to conceal all knowledge of the discovery, they apprehending an immediate rush, that in the present condition of the country must be attended with great privations. The nearest point at which supplies necessary to the miner can be obtained is Colville, which is over 100 miles distant from the newly discovered mines. The Indians, too, are represented to be decidedly hostile; and inasmuch as the troops are about to remove, miners would be exposed to constant attacks from savage foes. We mention these facts as a caution against a wild and headlong rush, but should the mines prove half as rich as represented, not all these dangers twice over would serve to check the crowd of gold hunters that from all quarters will hie to the new El Dorado. The expressman who brings this news, says that he has been all through the California mining districts, but no where has he seen dirt that prospected so well as that at the Si-mil-ka-meen gold mines. The discovery, we are told, was made by Sergeant Compton, in whose honour the locality has been named "Compton Bar."

The effect of this news has been to create quite an excitement in our town, but as yet we hear of no departures for the new gold mines. Should the next advices confirm these startling reports, we may expect to witness a stampede scarcely equalled by that to Fraser River.

Since writing the above, we have been permitted to make the following extracts from letters received at this place from officers of the army, attached to the boundary survey.

Although the discoveries made are to a very limited extent, yet they prove what we have heretofore asserted as our belief in the existence of gold in that part of Washington Territory, and the Upper Columbia, to be correct.

It is now, however, too late to prosecute the investigation this season, but we do not entertain a single doubt that during the next spring and summer developments will be made which will establish the fact of that part of the country being—as we have always believed it was—equal, in mineral wealth, to any part of California or Mexico.

#### EXTRACTS FROM LETTERS.

Camp Si-mil-ka-meen, Oct. 8, 1859.

\* \* I am detached with 14 men at the N. W. B. station on the Si-mil-ka-meen, about 12 miles from its mouth. \* \* On the 6th, my sergeant showed me the result of six pans which he washed

and we found it to be worth \$6. On the 7th, two men obtained \$20 each; others from \$5 to \$15. We have no tools or conveniences, and the men know but little about digging gold. I give you the simple facts, and shall make no comments. \* \* \* It is much coarser gold than any found on Fraser River, some pieces weighing \$2 to \$50.

This river is very incorrectly mapped, as it is 150 miles long, with numberless tributaries. It is a swollen mountain torrent till the middle of July, so that it is late before it can be worked. It is my opinion that this gold was washed out of the hills contiguous, this year, as these diggings thus far have been on the surface only. You know that gold will always, if you give it time, find its way to the bed rock. I do not know that they will be developed soon as we shall leave here in 10 or 12 days, and it will not be safe for a small party to attempt to mine. These Indians want a severe thrashing, and then the country can be traversed with safety. Our command has kept them civil, otherwise there would have been the devil to pay as usual.

Camp Osoyoos, W. T., Oct. 10, 1859.

\* \* \* As many gold-fevered letters were doubtless dispatched by the regular mail, it may be important to the excitable population of your city, to have correct accounts from the diggings. It is true that a rich placer, yielding from \$10 to \$30 a day to the hand, has been discovered, ten miles above the forks—but the gold is confined to a single locality, the extent of which is not more than 25 by 10 yards.

White, whom I sent out to prospect the stream for four or five miles above and below the placer, has failed to find it in remunerative quantities at any other point. It seems to be the opinion of experienced California miners that, rich as the placer is it will be worked out in less than two weeks, and that there is no more gold on the river worth mining.

I mention all this in order to prevent men who may have heard exaggerated accounts from coming this fall. Possibly next spring or summer, miners might come and discover something better, but to come from the Dalles now would end in nothing but suffering and disappointment.

I was always confident that gold existed in the mountains of this territory, and expected a discovery by some one of the many expeditions which went out last spring.

No. 30.

No. 30.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

(No. 239.)

Victoria, Vancouver's Island, December 22, 1859.

MY LORD DUKE,

(Received February 14, 1860.)

I HAVE the honour of transmitting herewith the copy of a Proclamation providing for the establishment of courts in British Columbia, to enable suitors to recover debts not exceeding in value the sum of 50*l.* sterling by a cheap and speedy method. The practice of the Supreme Court was found to be too slow and expensive to meet the exigencies of suitors in the recovery of small debts, which were not unfrequently abandoned in preference to incurring the expense of seeking redress at that tribunal.

2. Many abuses had grown out of that state of things, together with a general want of confidence, and an almost entire stoppage of credit transactions, to the great injury of the mining population, who require advances to enable them to carry on their operations.

3. The evil was not felt under the form of government established previously to the Proclamation declaring English law in force in the colony of British Columbia, which issued on the 19th day of November 1858, as justices of the peace were before that event necessarily invested with very extensive powers, which they exercised to the satisfaction of the public, who overlooked occasional deviations from the strict letter of the law, in the security enjoyed, and the amount of public good achieved.

4. There is a general feeling in the colony in favour of the re-establishment of that system, which would, however, be inconsistent with English law, and the Attorney General has framed the Act, now herewith transmitted, to accomplish the desired object of facilitating the recovery of small debts by a process rapid and yet not expensive to suitors.

5. The additional expense to the colony will be inconsiderable, as the whole business of the new courts is to be conducted by the present stipendiary magistrates, with the single addition of Mr. Elliot, an English barrister, whose salary of 200*l.* a year will be paid from fees.

6. The "Joint Stock Companies Act" has also in view the encouragement of mercantile enterprise and the formation of joint stock companies, by restricting the liability of shareholders to the amount of their investments in those concerns, and relieving them from further responsibility.

III.



BRITISH  
COLUMBIA.

7. Those Acts are both much needed, and will be of great advantage to the colony.  
 8. The reports of the Attorney General, fully explaining the character of the Acts, are also herewith transmitted for your information.

I have, &c.  
 (Signed) JAMES DOUGLAS,  
 Governor.

His Grace the Duke of Newcastle,  
 &c.                      &c.                      &c.

Encl. 1 in  
No. 30.

Enclosure 1 in No. 30.

(No. 14.)

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia, Vice Admiral of the same, &c., &c.

WHEREAS under and by virtue of an Act of Parliament made and passed in the Session of Parliament held in the 21st and 22nd year of the reign of Her Majesty Queen Victoria, intituled an "Act to Provide for the Government of British Columbia," and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas, have been appointed Governor of the said colony, and have been authorized by Declaration under the public Seal of the said colony, to make laws, institutions, and ordinances for the peace, order, and good government of the same; and Whereas it is expedient to afford a clear and speedy method of recovering small debts and demands in British Columbia,

Now, therefore, I, James Douglas, Governor of the said Colony, do proclaim and do declare as follows, viz.:

1. Every person whom I may from time to time hereafter commission to act as a County Court Judge in British Columbia shall, from the date of his commission, be authorized and empowered to hear and determine all personal pleas and all actions of tort cognizable by the County Courts in England in manner hereafter mentioned.

2. So much of the enactments of the 8th and 10th Victoria, chap. 95, entitled an Act for the more easy recovery of small debts and demands in England as are applicable to this colony shall be adopted by the County Court Judge.

3. The amount recoverable before any County Court Judge in British Columbia shall not exceed the sum of 50*l*.

4. The duties of the clerk of the Court appointed in England shall be performed by the County Court Judge himself.

5. The duties of the High Bailiff, appointed in England, shall be performed by the Sheriff of British Columbia, or by any Deputy Sheriff of British Columbia.

6. The practice and procedure in the County Courts, over which such County Court Judge shall preside, and the fees to be taken therein shall, as herein mentioned, and until altered by some rule or order to be made as hereinafter mentioned, be the same as in the Inferior Court of Civil Justice, in Vancouver Island.

7. The County Court Judge shall have a power of granting a *capias ad respondendum*, in all cases of debt of the amount of 20*l*. or upwards.

8. Any three of the County Court Judges, and also the Judge of the Supreme Court of Civil Justice in British Columbia, may make rules and orders for the governance of the County Courts of British Columbia, which rules or orders shall be of full force when confirmed by the Governor of British Columbia, and the Judge of the Supreme Court of Civil Justice of British Columbia.

9. All fees shall from time to time be paid into the Treasury.

10. This Act may be cited for all purposes as the "British Columbia Small Debts Act, 1859."

Issued under the Public Seal of the said Colony, at Victoria, Vancouver Island, this tenth day of December, in the year of our Lord one thousand eight hundred and fifty-nine, and the twenty-third year of Her Majesty's Reign, by me,

JAMES DOUGLAS. (L. S.)

By Command of his Excellency,  
 WILLIAM A. G. YOUNG,  
 Acting Colonial Secretary.

GOD SAVE THE QUEEN.

Encl. 2 in  
No. 30.

Enclosure 2 in No. 30.

(No. 15.)

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of British Columbia, Vice-Admiral of the same, &c.

WHEREAS under and by virtue of an Act of Parliament, made and passed in the session of Parliament held in the 21st and 22nd years of the reign of Her Majesty Queen Victoria, intituled an Act to provide for the "Government of British Columbia," and by a commission under the Great Seal of the United Kingdom of Great Britain and Ireland, I, James Douglas have been appointed Governor of the said Colony, and have been authorized by Proclamation under the Public Seal of the said Colony, to make laws, institutions and ordinances, for the peace, order, and good government of the same; and

Whereas doubts have arisen whether the Joint Stock Companies' Acts 1856, 1857, and 1858, apply to British Columbia.

Now, therefore, I, James Douglas, do hereby declare, proclaim, and enact as follows:—

1. That the said Acts shall be taken, construed, and read together, and be taken and deemed to extend to the Colony of British Columbia except as herein-after mentioned.

2. The third section of the Joint Stock Companies' Act, 1857, shall not apply to mining companies in British Columbia.

3. The eleventh section of the said Act shall not come into operation until the imposition of a stamp duty in British Columbia.

4. The power given to companies to empower any person as their attorney to execute deeds on their behalf in any place not situate in the United Kingdom, shall not apply to the execution of deeds in British Columbia, and shall include a power to empower an attorney as aforesaid to execute deeds in the United Kingdom.

5. That the reports to be made to, and the powers and duties vested in and imposed upon the Board of Trade by the said Acts, shall be vested in and imposed upon the Attorney-General of British Columbia until some other person or authority shall be nominated by the Governor for the time being, of British Columbia.

6. That until some other person or authority shall be nominated as aforesaid, the Attorney-General of British Columbia shall be the Registrar of Joint Stock Companies.

That the aforesaid "The Court" in the said Acts defined shall mean the Supreme Court of Civil Justice of British Columbia.

That the "official liquidator" in the 88th section of the said Act, particularly mentioned shall be in every case appointed by the said Supreme Court of Civil Justice of British Columbia.

That the several powers by the said Act vested in the Lord Chancellor of Great Britain, shall be vested in the Judge of the Supreme Court of Civil Justice of British Columbia, who may make all rules which the Lord Chancellor of Great Britain is by the said Acts empowered to make, such rules when made, to be approved of by the Governor for the time being of British Columbia.

That any person may be appointed by the Judge of the Supreme Court of Civil Justice of British Columbia to act as a special commissioner to take evidence.

Notices by the said Acts required to be published in the London, Edinburgh, and Dublin Gazettes, shall be published in the official Gazette of British Columbia.

The fees to be paid under the said Acts shall be paid by the person receiving the same into the Treasury of British Columbia.

This Act may be cited for all purposes as the "British Columbia Joint Stock Companies' Act, 1859."

Issued under the Public Seal of the said Colony, at Victoria, Vancouver Island, this tenth day of December, one thousand eight hundred and fifty-nine, in the twenty-third year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

By Command of his Excellency.

WILLIAM A. G. YOUNG,

Acting Colonial Secretary.

GOD SAVE THE QUEEN.

No. 31.

No. 31.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

(No. 240.)

Victoria, Vancouver's Island, December 22, 1859.

MY LORD DUKE,

(Received February 14, 1860.)

I HAVE the honour of transmitting herewith for your Grace's information the copy of a Proclamation issued on the 2nd day of December instant, imposing a charge of 12s. per ton on all goods transported or taken from New Westminster to any place in British Columbia, to be paid by the carrier of the goods to the collector of Her Majesty's customs at New Westminster.

2. This is simply a revenue Act, intended to raise a fund to be applied to the opening and improvement of the navigation in the Fraser and Harrison Rivers, and especially to the removal of an extensive shoal in the latter, which renders it impassable by the river steam vessels for a great part of the year.

3. The tax has not excited the smallest feeling of discontent even among the proprietors of steam vessels, who are acquainted with its object, and expect to derive many advantages from the improvement of the navigation.

I have, &c.

His Grace the Duke of Newcastle,  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.



BRITISH  
COLUMBIA.

Encl. in No. 31.

Enclosure in No. 31.

(No. 16.)

## PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the most Honourable Order of the Bath, Governor and Commander-in-Chief of Her Majesty's Colony of British Columbia, and its Dependencies.

WHEREAS, by virtue of an Act of Parliament made and passed in the 21st and 22nd years of the reign of Her most Gracious Majesty the Queen, and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, in conformity therewith I, James Douglas, Governor of the Colony of British Columbia, have been authorized by Proclamation issued under the Public Seal of the said Colony, to make laws, institutions, and ordinances, for the peace, order, and good government of the same.

And whereas it is expedient to raise further revenue for the purpose of opening and improving the communications, navigation, and roads in British Columbia.

Now, therefore, I do hereby declare, proclaim, and enact as follows:

That the following monies and tolls shall be levied on all wares, goods, and merchandise, carried in British Columbia from the 1st of January 1860:—

Twelve shillings for every ton of wares, goods, and merchandise transported or taken from New Westminster to any place in British Columbia.

The said twelve shillings per ton shall be paid by the person proposing to take away or transport any wares, goods, or merchandise aforesaid to Her Majesty's Collector of Customs at New Westminster, before taking away or transporting any such wares, goods or merchandise from New Westminster aforesaid.

The ton aforesaid shall be calculated where the wares, goods, and merchandise are of a character generally estimated by admeasurement by admeasurement, and in all other cases by weight.

Whenever any wares, goods, or merchandise shall be proposed to be carried or transported from New Westminster as aforesaid, by any common carrier, either by land or water, whether on his own account or on account of any other person, the tolls and monies aforesaid shall be levied on and payable by the common carrier aforesaid.

Any person wilfully evading or attempting to evade the payment of the same, shall be fined treble the amount of toll, or any sum not exceeding 100%, at the discretion of the magistrate.

Any penalty under this Act may be recovered and enforced before any magistrate in British Columbia in a summary way.

Issued under the Public Seal of the said Colony, at Victoria, Vancouver Island, this Tenth day of December 1859, in the Twenty-third year of Her Majesty's Reign, by me,

JAMES DOUGLAS. (L.S.)

By command of his Excellency.

WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.

No. 32.

No. 32.

COPY OF DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE OF NEWCASTLE.

(No. 241.)

Victoria, Vancouver's Island, December 23, 1859.

(Received February 14, 1860.)

(Answered No. 12, February 28, 1860, page 108.)

MY LORD DUKE,

I HAVE the honour of transmitting herewith, at the request of Colonel Moody, the accompanying copy of a communication from him respecting the portions of land which it may be desirable to reserve in Burrard's Inlet for naval purposes, and to inform your Grace that I will immediately enter into communication with Admiral Baynes on the subject, and will direct the Commissioner of Lands and Works to make such reserves for naval purposes as the former officer may deem expedient.

I have, &amp;c.

His Grace the Duke of Newcastle.  
&c. &c. &c.(Signed) JAMES DOUGLAS,  
Governor.

Encl. in No. 32.

Enclosure in No 32.

SIR,

New Westminster, December 13, 1859.

PERSONS are now beginning to apply for lands on Burrard's Inlet, and as that port has been deemed by naval authorities to be of considerable naval importance, partly in consequence of its close proximity to this city and the river Fraser, I have the honour to submit that it is of immediate consequence to communicate with the Admiral Commanding-in-Chief, fortunately now at Esquimalt, that he may be pleased to express his opinions as to the portions it is desirable should be reserved for naval requirements.

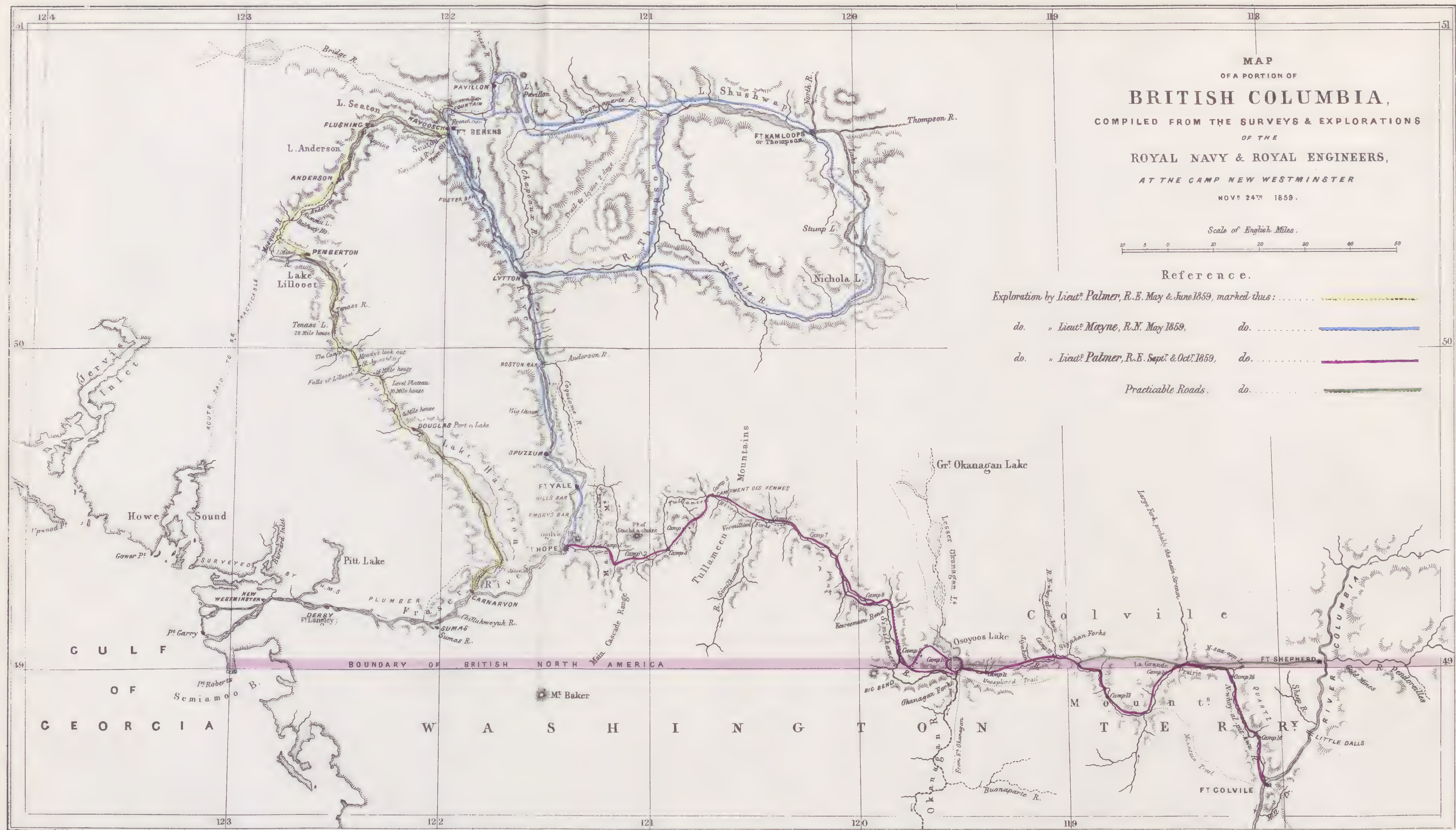
I should feel obliged by your causing a copy of this letter to be forwarded for the information of the Secretary of State.

His Excellency Governor Douglas.

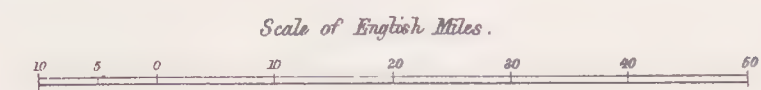
I have, &amp;c.

(Signed) R. C. MOODY,  
Colonel.





MAP  
OF A PORTION OF  
**BRITISH COLUMBIA,**  
COMPILED FROM THE SURVEYS & EXPLORATIONS  
OF THE  
ROYAL NAVY & ROYAL ENGINEERS,  
AT THE CAMP NEW WESTMINSTER  
NOV 24<sup>TH</sup> 1859.



- Reference.
- Exploration by Lieut. Palmer, R.E. May & June 1859, marked thus: .....
- do. " Lieut. Mayne, R.N. May 1859, do. ....
- do. " Lieut. Palmer, R.E. Sept. & Oct. 1859, do. ....
- Practicable Roads, do. ....



No. 33.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

BRITISH  
COLUMBIA.  
No. 33.

Victoria, Vancouver's Island, January 9, 1860.

(Received March 5, 1860.)

(No. 1.)  
MY LORD DUKE,

I HAVE the honour to transmit herewith, for your Grace's information, a report, with maps, of a journey made by Lieutenant Palmer, R.E., from Fort Hope to Fort Colville in September 1859.

I have, &amp;c.

(Signed) JAMES DOUGLAS,  
Governor.

His Grace the Duke of Newcastle,  
&c. &c. &c.

Enclosure in No. 33.

Encl. in No. 33.

SIR,

Royal Engineer Camp, New Westminster,  
British Columbia, Nov. 23, 1859.

IN obedience to instructions furnished me by Captain R. M. Parsons, R.E., I hasten to lay before you a short report, topographical and otherwise, on the country between Fort Hope on the Fraser and Fort Colville on the Columbia River.

I deem it the better plan, and one calculated to give you as much information as a hurried reconnaissance can develope, to describe separately each day's journey, dwelling on such points of interest as presented themselves on the route, and embracing as much minutiae as a simple and rapid topographical report will admit of.

With the assistance of an excellent chronometer and a sextant I was enabled to fix the astronomical positions of nearly all my camps, the longitudes having reference to the Royal Engineer observatory at this place.

The report is accompanied by a geographical map on the scale of five English miles to one inch of the route, and the country in its vicinity, and a table is annexed showing the latitudes and longitudes of my camps, their approximate altitudes in feet above the sea level, as determined by aneroidal observations, their distances from one another, and their respective availabilities, for wood, water, &c.

I beg further to state that I took the liberty of furnishing Mr. Begbie, Chief Justice of British Columbia, (who travelled part of the way with me) with the approximate latitudes of a few of our camps, as a means of guiding him in the construction of a reconnaissance sketch of the route from Fort Hope to Fort Kamloops.

It being too late by the time my work was completed to recross the Cascade mountains I took the Columbia River route to Portland, crossing thence to Olympia, and reached this place on the 4th instant. Since, however, I am anxious to lay this report before you as quickly as possible, I shall have the honour to afford you further information in a second report with reference to personal instructions.

In conclusion, I take this opportunity to acknowledge the kindness and courtesy of Mr. Angus McDonald, of the Hudson Bay Company, who furnished me with horses from Fort Hope to Fort Colville, and gave me much local and general information about the country, on which, from his great experience and long residence in this part of the world, I feel assured every reliance is to be placed.

I have, &amp;c.

(Signed) H. SPENCER PALMER,  
Lieutenant Royal Engineers.

Colonel R. C. Moody, R.E.  
&c. &c.

P.S.—November 24th. I have the honour further to annex to my report a map on a scale of 20 miles to one inch of such portions of British Columbia as have been already surveyed and explored by the Royal Navy and Royal Engineers.

This map has been prepared with the view of indicating the relative positions of the inlets on the coast and the inhabited portions of British Columbia, also in illustration of the opinions expressed in the military section of my report.

I have, &amp;c.

(Signed) H. S. PALMER,  
Lieutenant Royal Engineers.

## COPY OF INSTRUCTIONS.

SIR,

New Westminster, September 8, 1859.

You will proceed from New Westminster to Fort Hope, attach yourself there to a party of gentlemen in the Hudson Bay Company's Service under the command of Mr. Angus McDonald, and travel with them to Fort Colville.

The object of your mission is to gain information on the country lying between Fort Hope and the 49th parallel of latitude, where it meets the route to Fort Colville.

To this end you will freely communicate with Mr. McDonald, a gentleman of great information, who has travelled much in this country, and is kindly disposed to assist your inquiries.

BRITISH  
COLUMBIA.

You will take with you such instruments as are necessary to determine a few positions astronomically, and to establish the general course of your route.

As it is not practicable for me to give you detailed instructions as to what objects most merit your attention in a region of which we know so little, I confide in your habits of observation, impressing upon you the necessity of keeping full notes of your journey, and of the general nature and result of your inquiries, day by day.

It seems desirable that you should note daily the hours of your travel, and estimate the distances accomplished; this will assist you in confining your descriptions of the topography of the region within their proper limits.

In describing the general features of the country I request you will pay attention to the following points:—

From Fort Hope to Manson Mountain, is there any land available for agriculture; describe carefully the route across Manson Mountain; does it appear to be a continuous range joining Mount Baker; is it densely wooded; what is its geological formation and the general bearing of its crest; inquire if there are more passes than one; could the trail be carried round the mountain on either flank; between what months is the mountain covered with snow; is the route then impracticable; is there any eligible site for a military post on the frontier slope, or anywhere near the pass with which a communication could be kept open throughout the year?

Describe the Similkameen Valley; its adaptability to settlement; if inhabited by Indians state how they live, and if they have in any way cultivated the soil; is there any building material to be found in the valley; is fuel abundant; is it so open that it can be crossed on horseback in any direction at will; is there any position on the plain, or near the confines of it in our territory, where a post could be established that would command the routes to British Columbia from Washington Territory; what access is there to this plain from Fort Thompson; is any trail known from Fort Langley or Whatcomby?

Describe the Tulameen and Similkameen Rivers and their banks.

You will describe, as far as practicable, the geological formation of the country through which you pass, noting carefully if you meet with it the locality of a change from trappean to stratified rocks; out-cropping rocks on the plains should be paid attention to, river banks inspected, and the character of boulders and detritus given.

Astronomical observations are requested to be made, as frequently as possible, at points on your route that can hereafter be readily recognized; among them I would suggest the point where the route first crosses the Tulameen River; the junction of that river with the Similkameen and some point on the plain near the 49th parallel.

The bearings on your route will be determined with the prismatic compass, also the courses of the rivers as far as possible. Observations should be taken to conspicuous hills and up valleys, especially from the points fixed astronomically. It will be desirable if you can employ the Aneroid barometer for altitudes.

You will not stay at Fort Colville longer than is necessary, but make arrangements to return to head-quarters in the quickest and most economical manner; to this end you will consult Mr. McDonald, who is certain to render you valuable assistance.

On your return you will frame your report to the officer commanding with the least possible delay.

I have &c.

(Signed)

R. M. PARSONS,

Captain R. E. commanding.

Lieutenant Palmer, R. E.

REPORT on the Country between Fort Hope on the Fraser and Fort Colville on the Columbia River,  
by Lieutenant H. SPENCER PALMER, Royal Engineers.

#### PART I.—TOPOGRAPHICAL JOURNAL.

September 9th to 16th.—In compliance with my instructions I left New Westminster on the 9th of September last, and after a somewhat tedious trip reached Fort Hope on the morning of the 11th.

Unfortunately the weather during my stay there was anything but favourable for astronomical observations, but I succeeded in obtaining sufficient to verify previous results and to afford me a good chronometer rate. The position of Fort Hope, and the principal natural features of the country in its vicinity, have probably been already so well made known, that it appears unnecessary to enter into any minutiae respecting them.

I may, however, state that the fort stands on the left bank of the Fraser, in lat.  $49^{\circ} 22' 21''$  N., long.  $121^{\circ} 24' 39''$  W., about 85 miles by water above New Westminster. The only means of access to it from the lower country at present existing are two, viz., the steamer route on the Fraser, practicable for powerful vessels at all seasons, and a trail from Whatcom\* cut last year by miners, which passes to the southward of Langley, and, joining the Fraser 50 miles above, follows up its left bank to Fort Hope.

The site of the town and fort is in the heart of the mountains, not the Main Cascade Range, but spurs from six ridges parallel to it, which extend down either bank of the river for some 15 miles and upwards for a much greater distance.

The river Coquahalla, which rises in the Cascades, has a general westerly direction from seven miles above its mouth downwards, and, taking a bend to the N.W.,  $1\frac{1}{2}$  miles behind the town, empties into the Fraser  $2\frac{1}{2}$  miles above it.

It is in the embouchure of the valley of this river that the town of Hope is situated, and up this valley runs the route which forks to Manson's Mountain and Boston Bar, the former an old Hudson Bay trail, the latter cut this summer by a party of Royal Engineers, under the direction of Captain Lempriere, R. E.

The most prominent mountain visible from Fort Hope is Ogilvie's Peak, bearing N.  $58^{\circ}$  E. (true) and distant four or five miles in an air line. A glimpse can occasionally be had in clear weather of the summit of Manson Mountain, bearing N.  $88^{\circ}$  E., a bearing I afterwards found to correspond pre-

\* Whatcom is a town in American territory situated on the Gulf of Georgia.



cisely with an observation for latitude obtained near that point, and which gave me great confidence in the accuracy of my results.

September 17.—On the 17th of September I left Fort Hope, in company with Mr. Angus M'Donald, of the Hudson's Bay Company, and commenced my journey up the Coquahalla Valley.

Mr. Begbie, Chief Justice of British Columbia, Mr. Bushby, Registrar, and Mr. O'Reilly, J.P., who were travelling to Fort Kamloops on judicial business, accompanied our party on foot.

Taking a general easterly direction our route up the valley for the first three miles passed through a country level and lightly timbered, and covered in places with an abundance of brush and young trees.

The soil appeared somewhat sandy and light, but good for farming, and this portion of the valley is as well irrigated as any land (that is capable of cultivation) I have met with in British Columbia.

Three miles east of Fort Hope two conical hills, from 600 to 800 feet high, obstruct the otherwise generally straight course of the river, and have forced it to find a passage between them and the mountain mass skirting the southern limits of the valley. To avoid this unnecessary circuit, the trail crosses the Coquahalla  $1\frac{1}{2}$  miles from Hope, and, leaving it to the right, follows the level country to the base of the first hill. Near this spot lies a pretty little lake, to which I could see no outlet or inlet, and which was apparently fed by springs and the drainage from the mountains. Towering above its opposite shores were the steep rocky cliffs of "Ogilvie's" and adjacent peaks so close as to be clearly reflected in the dark still water of the lake, and a tiny cascade stealing down the crooked crannies of the mountain with a scarcely perceptible motion added to the picturesque beauty of the spot.

Leaving the lake, we crossed the two conical hills before us, and rejoined the Coquahalla three miles further on. While traversing the southern slope of the second of these two hills Mr. M'Donald drew my attention to what was apparently a large defile in the mountain range, bearing S.E. about 20 miles, and leading, as far as I could judge at that distance, through the main Cascade Range eastward.

That part of the country having never yet been explored, this opinion is simply a matter of conjecture. Much yet remains to be done in order to discover some more feasible pass to our possessions east of the Cascades than that afforded by Manson Mountain, and it is the opinion of many old residents in the country that passes do exist, which have yet to be explored, south of the present one, but, at the same time, north of the boundary of British North America.

After rejoining the Coquahalla we travelled along its right bank for about one mile, and then, leaving the Boston Bar trail trending north, up the valley of the river, we crossed to its left bank a mile west of the foot of the most prominent spur from the Manson Range. On arrival at the foot of this spur, we commenced the ascent on the southern slope in a direction parallel, or nearly so, to its crest, leaving the mass of the mountain intervening between us and the Coquahalla. Here the road, which thus far had been tolerably good, deteriorated to an extent anything but pleasant, a rude, rocky track wound its way along the steep sides of the mountain over hundreds of fallen logs and amongst masses of fragmentary rock that have from time to time been detached from the precipices above, and, on attaining a higher elevation, mud, one of the few disagreeables of a mountain journey in the Cascades, and deep enough to debar any but Indian horses from forcing their way through it, rendered travelling a matter of considerable difficulty, and added a scarcely agreeable feature to a landscape already somewhat limited.

Six miles of this travelling brought us to the first camping place, where a slight opening in the woods enabled me to discover the features of the country through which the latter part of our route had lain.

We appeared to have been travelling up a mountain pass walled in by two slightly converging spurs from the Manson Range, whose slopes, although separated at the opening of the pass by a considerable space, here meet and form a rocky defile, down the bed of which a swift brook forces its way, and, fed on its passage by numerous small streams and waterfalls, swells to the magnitude of a mountain torrent, and rushes into the Coquahalla a short distance below the point where we last crossed.

To the east I saw towering above us the steep portion of the main Manson Range, over which lay our to-morrow's journey, its crest running nearly North and South, and connecting the two spurs above mentioned.

This evening, the weather being beautifully clear, I was enabled to take stellar observations for latitude and departure, a piece of good fortune I had not anticipated, as the latter part of our route had been too densely wooded to admit of observing anywhere but in the slightly open place selected for our camping ground.

Wood and water were of course abundant, but the horses had to be fed on barley brought for the purpose, there being no grass in the neighbourhood or indeed anywhere on the mountain slopes.

September 18.—We rose at dawn, and soon commenced the laborious ascent of the mountain by a zig-zag trail, very steep and rocky, but, fortunately for ourselves and the horses, free from mud.

After struggling up this difficult mountain path for an hour and a half we reached the summit of the pass, the magnificent view from which fully compensates the traveller for the labour of the ascent.

Looking north, south, and east, the view embraced mountain scenery of a description scarcely to be surpassed.

As far as the eye could reach, an endless sea of mountains rolled away into blue distance, their sides clothed almost to the summits with an impenetrable forest of every species of pine, and their peaks and recesses lit up by the rays of the early sun, too early yet to lighten the gloomy valley below us.

Here and there a rugged naked peak towered up in bold relief some 1,000 feet or more above the summits of the adjacent ranges, spotted with occasional patches of snow in crevices never perhaps penetrated by the sunlight, and so complete was the net-work of mountains in which we were enveloped, that the question of "How we were ever to get out of them," which naturally occurred, appeared to me somewhat difficult of solution.

Looking west, the view of the Fraser valley was obstructed by the spurs between which we had travelled yesterday afternoon, and the only signs of its whereabouts were developed by a break in the otherwise interminable mountain mass.



BRITISH  
COLUMBIA.

I endeavoured while on the summit to form as good an idea of the topography of the region as the time I spent there would admit of.

East of where I stood, and about five miles distant in an air line runs a mountain mass, bearing more resemblance to a range than the rest, whose summits are somewhat higher than those of the surrounding ridges, and the general direction of its crest about N.N.E.

From the fact of its being the dividing ridge between the tributaries of the lower Fraser and those of the Columbia I entertain no doubt that this is the backbone of the Cascade Range, but so undefined are its general features, and so remarkable is the absence of any prominent and distinguishing snow capped peaks, such as are visible from the "Dalles," and by which one may determine the general bearing of a range, that it is a matter of extreme difficulty to follow its direction with the eye for more than a few miles.

Apparently it forked with the Manson Range about 10 miles south of where I stood, but beyond that all traces of its direction were lost.

I was not able to see Mount Baker, but from general appearances and its known position I am of opinion that the network of mountains constituting the dividing range maintains a general south-south-westerly direction till it unites with that peak.

Between me and the main ridge was a deep glen or forest bottom, not free from mountains, it is true, but nevertheless a valley, down which pours in a considerable stream one of the head tributaries of the Coquahalla, uniting with it in about  $49^{\circ} 35'$  north latitude, near northern extremity of the Manson Range.

Before closing my description of this mountain I may mention that the snow which in winter falls to a depth of from 25 to 30 feet on its summit, renders the route impracticable for at least seven months in the year, and dangerous before the 1st of June or after the 1st of October.

Mr. McLean of the Hudson Bay Company, who crossed in 1857 or 1858, on the 16th of October had a very disastrous trip, and lost 60 or 70 horses in the snow.

Traces of their deaths are still visible, and in riding over the mountain, and more particularly on its eastern slope, my horse frequently shied at the whitened bones of some one of the poor animals, who had broken down in the sharp struggle with fatigue and hunger, and been left to perish where he lay.

After riding along the summit in a southerly direction for a couple of hundred yards, we commenced the descent of the eastern slope, an undertaking which was accomplished with considerable difficulty, owing to the rocky and dangerous nature of the trail, and its extreme steepness in places, and I was not sorry to reach a tolerably level forest bottom 1,100 feet below the summit, filled though it was with an impassable mud of black decomposed vegetable matter, and a net-work of thick-growing and obstructive timber.

The trail follows this bottom for about five miles in a general south-south-easterly direction, a distance it took us  $3\frac{1}{2}$  hours to travel, and then plunging into a deep glen crosses the previously mentioned tributary of the Coquahalla.

The western slope of the dividing ridge falls almost perpendicularly into this stream, and though less muddy than those of Manson Mountain, and tolerably free from rock, except in places where huge masses of debris detached from the summit have found a lodgment on the side of the hill, it is if anything steeper than the latter, though not so trying to animals.

The mountain sides are plentifully clothed with a forest of spruce fir trees of inconsiderable dimensions, and brush appears scarcer than heretofore.

The trail winds up the face of a huge spur from the mountain mass, jutting out in a south-westerly direction, and, steep though it was, our horses appeared to ascend with much greater ease than they did on the rocky muddy slopes of Manson's Mountain.

In two hours a considerable decrease in the density of the forest, and the appearance of short grass and mountain heather told me we were nearing the summit; the timber shortly almost entirely disappeared, and as both men and horses were by this time tired, we camped towards evening in a pretty sheltered spot 600 feet below the summit known as the "Campment du Chevreuil."

At this camp No. 2 (19 miles by trail from No. 1), water and firewood are abundant, and grass, though by no means plentiful, grows on the neighbouring slopes in quantities sufficient to afford subsistence for horses.

Its name is likely to disappoint the expectations of the hungry traveller, as deer are very scarce, but white ptarmigan abound, and some of these birds which were shot by our Indians and broiled over the camp fire, made an excellent supper after our weary day's march.

It is here that Mr. Fraser met his death by a tree falling on him when asleep, and within a few yards of the spot where we had pitched our tent; a neat pile of rough hewn logs mark his lonely grave.

September 19th.—The day broke misty and cold, and afforded no great promise of an extensive view from the summit. I started early that I might have as much time there as possible, and reached the highest practicable point about half an hour after leaving camp.

The appearance of the mountain scenery at this hour was most singular.

The thick morning mist, rolling swiftly along in light, fleecy, but opaque masses, entirely obscured the valley below us, and revealing only a few lofty peaks of the adjacent ranges appeared to isolate us from the rest of the world.

Yielding to the rising sun, it ere long began gradually to lift; the peaks in turn became one by one concealed, and before I left the spot the whole had clear away, revealing to the north, south, and west the same lofty crests and ridges, and the same interminable sea of mountains that I had admired yesterday morning from the western summit.

To the east, however, the scene was different. True, the country was pretty closely packed with mountains, but unlike the bold and rugged outlines of the Cascade range, their slopes and summits were more soft and rounded in appearance; indications were to be seen of extensive and probably fertile valleys, and tapering away in the far distance, the mountains seemed gradually to diminish their proportions, and to subside into rolling hills with grassy and scantily timbered slopes.

I was again disappointed in not seeing Mount Baker, as I had hoped the superior elevation of this range would have afforded me a much more extensive view to the southward.



I obtained, however, a bearing of S. 64° E. to a remarkable conical peak, which cannot fail to be recognized, and which affords an excellent land-mark to any one desirous of forming a general idea of the topography and limits of this portion of British Columbia.

In a region like this the grand proportions of the mountains are calculated to deceive the eye very much with respect to distance, and the transparency of the atmosphere materially assists the delusion when an object is viewed from the summit of a range. From its bearing, however, and probable distance, I conjecture it would be very close to the 49th parallel. I afterwards found that it is situated on borders of the southern portion of the Similkameen valley, near the junction of that river and the Okanagan, and as it transpired that the parallel cuts its northern slope, I named it "Mount Forty-nine."

At Mr. McDonald's suggestion I gave the mountain we stood on the Gaelic name "Stuchd-a choiré," from a beautiful "choiré" or recess situated about half way down its eastern slope.

On the summit, and invisible except from the rocks immediately surrounding it, lies a pretty sequestered little lake, guarded by one solitary stunted oak, and lower down on the eastern slope is a larger one, on whose banks, there being plenty of firewood, travellers from the eastward frequently camp.

The "Campment du Chevreuil" is, however, the usual camping place going westward. About 10 A.M., the horses having arrived, we commenced our journey down the eastern slope of "Stuchd-a choiré," a matter easily accomplished owing to the gradual nature of the descent.

Singularly enough this ridge, while separating the waters of the Fraser tributaries from those of the Columbia, seems also to draw a dividing line between the characteristic features of the country.

In the tract upon which we were now entering grass seemed more beautiful than heretofore, the forest less dense, and the trees of diminished proportions; in lieu of soft vegetable mould a firm soil of sand and clay rendered travelling far easier and more pleasant; and brush which during the last two days' journey had been so dense as almost to preclude the possibility of avoiding occasional obstructions on the trail, now so nearly disappeared as to admit of deviation at will.

After descending some 800 feet from the summit, we struck a small stream fed by still smaller forks branching off into ravines and clefts in the hills. These are the head waters of the "Tulameen," the main tributary of the Similkameen River.

A low range of hills varying from 500 to 1,000 feet in height skirt the valley or rather the glen of this mountain torrent, which for the first 10 miles has a general direction of E. by N., and the trail runs on its left bank, at an undulating level over the low spurs from the range.

For the first seven or eight miles the road, though excellent for travel, passed through a forest of small burnt timber, and the scarred and blackened trunks, devoid of foliage, presented a dreary and monotonous landscape.

I passed on my journey through several similar tracts of greater or less extent, but I think the mountain spurs and rocks and the bends of the rivers form, as a general rule, impediments to the spread of the fires, which confine them within reasonable limits, and prevent their effects from being so devastating as one might imagine.

About 12 miles by trail from the point where we first struck it, the Tulameen takes a long sweep to the northward, and crossing it here at a ford where it was about 15 yards broad and 18 inches deep, we camped on the opposite bank. This camp, designated No. 3, is about 15 miles by the trail from the "Campment du Chevreuil," and contains an abundance of firewood and water. The horses were driven across the river again to feed, but as grass was very scarce they had to pick what they could from the wild vetches and other plants, on which Indian animals alone can subsist.

September 20th.—Commenced cloudy and cold with light rain.

From the point where we were camped the Tulameen takes a large horse-shoe bend to the northward, resuming its easterly course about 10 miles from us in a straight line near the completion of the shoe. The bend is filled up by an elevated plateau 1,000 feet high, whence numberless low, sharp, broken spurs jut out in every direction towards the stream.

Over this plateau lay our to-day's journey, the trail taking this route to avoid the long detour made by the Tulameen.

Four miles travel in a north-easterly direction up a steep defile, between two of the spurs, brought us to the summit, and we emerged on a large open undulating down, where the timber nearly disappeared, and was replaced by quantities of yellow furze and mountain heath.

On a clear day the view from this plain must be very extensive. Now, however, the atmosphere in the west was too thick and cloudy to afford us a glimpse of "Stuchd-a choiré," through the snowy Cascade Peaks to the south, and "Mount Forty-nine" in the south-eastern horizon were just visible at times.

Preserving a general north-easterly direction we continued our journey across the plateau. The soil became very peaty and the trail rocky in some places, though generally good for travel. Ponds and marshes frequently occurred, grass in the latter growing to a considerable height, though on the drier portions of the plain it was scarcely long enough for a horse to nibble at, and five miles from the commencement of the plateau timber (fir) again became plentiful. A short way further on a trail from "Whatcom," cut last year by miners anxious to reach "Thompson River," forks with that on which we were now travelling.

On the exact route it takes, or the extent to which it is practicable for travel, I could collect no reliable information; but I believe it crosses the cascades in the vicinity of the parallel, and is generally a better trail than that over Manson Mountain.\* At 2 p.m., after a short day's journey, we camped near the eastern extremity of the plateau, on the borders of a small, nearly circular, lake, half a mile in diameter, where wood was plentiful, and grass just sufficient for the horses to subsist on. In the evening a storm of snow and sleet gave us reason to congratulate ourselves on having snug tents and good camp fires; but as the sky remained overcast during the whole of our stay here, I was unfortunately prevented from taking any astronomical observations.

September 21.—The morning broke, cold, raw, and muggy; and the snow, which was some four or

\* Possibly it passes through the defile observed from the conical hill in the "Coquahalla" valley. Its direction would suggest that iden.

five inches deep, and still continuing to fall, scarcely contributed to the general comfort of either ourselves or our animals.

We decided not to move till the storm was over, which the Indians told us would be about noon, and their prediction proved correct; as shortly after that hour the snow ceased, the sky brightened, and we started as quickly as possible, anxious to reach the "Campment des Femmes" before nightfall.

We travelled this afternoon in a general north-easterly direction over a tract of country, lightly timbered and grassy on the uplands, but heavily timbered in the valleys.

The trail alternately rose and fell over a succession of low and rather precipitous ranges of hills, amongst the recesses of which the noisy waters of numerous small rivulets wind their tortuous paths, and uniting here and there in considerable streams force their way to various points on the Tulameen.

At 4.30 we reached the summit of the final steep descent of 600 feet to the river.

Immediately below us the "Tulameen," now swelled to the proportions of a river, whose course from the westward could be distinctly traced, takes a long stretch to the south-eastward, while running north. Opposite the spot where we stood extends a broad thickly timbered valley leading to the Nicholas Lake, and thence to Fort Kamloops.

Descending the hill we shortly reached the river, and leaving the Kamloops trail to our left traversed the right bank for a few hundred yards. Then, crossing at a ford, readily distinguishable, we pitched our tents at the "Campment des Femmes," so named from a custom prevalent among Indians en route for Fort Hope of leaving their women and children here while they perform the journey across the mountains.

The fine evening, and its position in a mild and pleasant valley, made camp 5 contrast agreeably with our last night's quarters, and some tolerable bunch grass afforded the horses a better meal than they had had since leaving Fort Hope. The stars, too, soon shone out, and with their assistance I was enabled to fix a point of considerable importance in connexion with the objects of my journey.

September 22. A fine clear morning. At this camp we bade good-bye to Mr. Begbie and party, who took the northern trail to Kamloops.

We followed the valley of the "Tulameen" in a general south-easterly direction along a level grassy river bottom rather scantily timbered and devoid of brush.

These bottoms vary in width from one-eighth to half of a mile, and the meanderings of the river cause them to alternate pretty regularly from side to side. The trail is generally good, but projecting rocky points and occasional slides from the mountains on our left now and then rendered travelling unpleasant. In one or two places the mountain spurs jutted precipitously into the river, and a rude rocky trail across the first practicable ledge would form the only means of access from bottom to bottom.

At mid-day we reached a point where the river takes a considerable bend to the south south-eastward, and to avoid the detour the trail passes to the eastward over a portion of the mountain range some 1,000 feet above the valley.

From the summit of this hill the country assumes a perfectly different character.

Bunch grass of excellent quality, probably the best known grazing food for cattle and horses, occurs everywhere in great quantities, forest land disappears from the slopes and gives way to a park-like country prettily ornamented with trees of somewhat inferior growth; the river instead of roaring through caverns and mountain bluffs is now bordered by low and easily accessible banks, and the eye of the traveller so long accustomed to the dull monotony of the forest dwells with pleasure on considerable tracts of prairie land in the valleys before him.

The everlasting mountains, it is true, do not disappear, but their rounded grassy slopes contrast favourably with the thick forest growth or bleak desolation of the western ranges, and though their summits tower up to considerable heights, the gradual nature of the slopes eliminates the rugged, unprepossessing, and inaccessible appearance so peculiar to the cascade region.

Immediately below us lay a large scantily timbered plain formed by the confluence of four considerable valleys. From the south a long tortuous line of willow and other trees marked the course of the "Similkameen," which rises in the mountains near the 49th parallel, and forks with the "Tulameen" in this plain.

The latter river enters from the N.W. and the two when united take an easterly course towards a third valley, the narrow entrance to which was plainly visible from our position, while running north a fourth, two miles wide, extends far away in the direction of Fort Kamloops. Up this latter valley runs one of the two main routes leading from Washington Territory to Fort Kamloops and the Upper Fraser, the other and shortest route past the Great Okanagan Lake lying altogether east of the Similkameen.

Descending the hill to the plain we crossed it in an easterly direction, and struck the Similkameen a mile below the Forks, and within a few hundred yards of the point where the Kamloops trail unites with that on which we were now travelling.

The junction of the two rivers is named the "Vermillion Forks," from the existence in its neighbourhood of a red clay or ochre, from which the Indians manufacture the vermilion face paint; but though I endeavoured to find its whereabouts, being anxious to procure a specimen, my search was unsuccessful.

We camped this evening on the left bank of the Similkameen one mile below the forks, and shortly after our arrival were visited by some of the natives of the district.

These were the first mounted Indians I had met with, and I was particularly struck with their vast superiority in point of intelligence and energy to the Fish Indians on the Fraser river and in its neighbourhood.

Agriculture, however, is but little known amongst them, and a few potato patches form the extent of their progress in this direction. They appear to live chiefly on fish, viz., trout and salmon, on game such as wild fowl, prairie chicken, and mountain sheep, and on wild berries, several kinds of which, including black and red cherries, abound in the neighbouring valleys.

The greater portion of the tribe were absent when we passed, but those who visited the camp were fine men, and superb riders, and, though poorly clad, evinced a neatness, and an effort to improve



their personal appearance, which contrasts favourably with the dirty, slovenly habits of the Fraser Indians.

The Romish religion is universal amongst them, propagated, I imagine, by the members of the Jesuit missions on the borders of Washington territory, and I was not a little surprised to see that, on entering camp, they invariably crossed themselves before making the sign of respect or salutation. Unlike the gaudy but picturesque native burial grounds which dot the banks of the rivers in the interior of British Columbia, the graves of these Indians are scattered about singly over the country, their wandering habits assigning no fixed place of abode, and a small earthen mound or pile of stones, surmounted by a wooden cross, were the only objects that marked the few solitary graves I happened to come across on the trip. I should mention that the "Similkameen" Indians are a portion of the Okanagan tribe, and speak the same language—one so guttural and unpronounceable as to render it almost hopeless for any white man to attempt to acquire a proficiency in it.

As our horses wanted a day's rest after their weary mountain journey, I decided to remain two nights at Camp 6, and the weather being fine and clear, I was again enabled to take astronomical observations. From these I obtained a mean latitude of  $49^{\circ} 27' 42''$  N., showing a considerable error in all existing maps; but I feel confident of the accuracy of the observations, and that any future survey will verify the result obtained.

September 24 and 25. The weather continued fine and clear, and we resumed our journey at an early hour. Passing over one of the mountain spurs, 300 feet high, at the narrow entrance to the valley, the trail descends into a fine prairie, scantily timbered, and containing excellent bunch grass.

As the valley for the first 37 miles (comprising two days' travel) exhibits the same general features, one description will suffice to afford the necessary information.

Like most of the mountain streams, the Similkameen is extremely tortuous, and the prairies, which alternate pretty regularly from side to side, vary in width from one-eighth to three-fourths of a mile, gradually increasing till towards Camp 8 they attain a breadth in places of a mile.

The grass is generally of good quality, the prickly pear or ground cactus, the sore enemy to the moccassined traveller, being the surest indication of approach to an inferior description.

Timber is for the most part scarce on the prairies, but coppices appear at the sharp bends of the river tolerably well wooded, and abounding in an underbrush of willow and wild cherry, while near the base of the mountains it exists in quantities easily procurable, and more than sufficient for the requirements\* of any settlers who might at some future time populate the district.

The soil is somewhat sandy and light, but free from stones, and generally pronounced excellent for grazing and farming; and though the drought in summer is great, and irrigation necessary, many large portions are already well watered by streams from the mountains, whose fall is so rapid as greatly to facilitate such further irrigation as might be required. In corroboration of my expressed opinion relative to the yielding properties of the soil, I may mention that in spots, through which, perchance, some small rivulet or spring wound its way to the river, wild vegetation was most luxuriant, and grass, some blades of which I measured out of curiosity, as much as nine feet high, well rounded and firm, and a quarter of an inch in diameter at its lower end.

The river throughout its entire course is confined to a natural bed, the banks being steep enough to prevent inundation during the freshets (a favourable omen for agriculture), and its margin is generally fringed with a considerable growth of wood of different kinds.

The mountains skirting either side of the valley are steep and frequently rocky, increasing in altitude towards Camp 8, where they attain a height of at least 2,000 feet, and their slopes are plentifully clothed with a forest of various descriptions of timber. The trail throughout is generally good, the mountain spurs at the bends and gorges of the valley, and down which slides frequently occur, being the only portions bad for travel, and many of these are avoided by fords, practicable at all seasons of the year.

Two considerable streams fork with the Similkameen from the south south-west, both of which rise in the cascades, or rather in the mountainous region east of the main range and near the 49th parallel.

The first, named the "Zloochman," unites with it about nine miles below "Vermillion," and an old "Carral," near the mouth, admits of its position being easily recognized. A trail follows the river for some distance into the mountains, leading to no particular place, and Indian hunters, the original makers, are probably the only people who frequent it.

The second, or "Na-is-new-low," river forks about 17 miles further down. Up its valley runs a tolerably good trail leading to the mountains near the parallel, and, as this route is both more practicable and shorter than that in the "Zloochman" valley, it has been used this autumn by the United States Boundary Commission for transporting eastward the whole of their stores, instruments, &c.

Several other mountain streams, some of them of considerable size, fork with the "Similkameen" from the northward and eastwards, but their directions and the positions of their sources are possessed of little interest.

September 26th.—A fine, mild morning. Travelling along from Camp 8, towards the Keerec-maous bend of the "Similkameen," the valley gradually widens to upwards of a mile; the prairies become more extensive, and the soil richer; timber is chiefly confined to the uplands and banks of the river, and the mountains, though undiminished in height, are covered with grass, and assume a pretty park-like appearance.

We soon reached the bend, distant four miles from Camp 8, where the river changes its direction from east to south. Looking southward from the head of the bend is seen a fine open valley 12 miles long, varying from  $1\frac{1}{2}$  to 2 miles in width at its upper and middle portions, and tapering to a narrow gorge at its lower extremity.

The river, after taking a bold sweep, runs along near the foot of a mountain range skirting the western edge of the valley, amongst the southernmost of which "Mount Forty-nine" again comes in view, and the trail follows a terrace or bench on the eastern side of the valley some distance from the river bank.

Rich, well irrigated soil, long grass, and luxuriant wild vegetation are the characteristic features of this beautiful district, which appears admirably adapted for cultivation, and may in fact be named "the Valley of the Similkameen."

\* For building, fuel, &c.

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We camped to-night at a point near the southern extremity of this valley, where the trail leaves it, and an observation of Polaris, which gave me a latitude of  $49^{\circ} 03' 20''$  north, dispels all doubt as to the position of the boundary in reference to the valuable tract through which we had just travelled.

September 27th. A wet, chilly, gusty morning, and snow visible on "Mount Forty-nine" and adjacent peaks.

About four miles from our camp (No. 9), occurs a second bend, commonly known as the "Big Bend" of the Similkameen." It here resumes its easterly course, passing at the bend through a cañon, or mountain defile, and the trail, striking off from the river to the south-eastward, rejoins it below the bend at a point nearly one mile south of the boundary.

An astronomical party of the United States Boundary Commission, and a portion of the escort under the command of Lieutenant Camp, U.S.A., were encamped on this spot.

The trail, on leaving Camp 9, passes over a divide in the range of hills bordering on the river, the ascent and descent being long and gradual, the land terraced and grassy, and the road good.

The topography of this district will be better understood by reference to the map, whence it will be seen that two trails lead to the "Osoyoos Lake," the one passing through the boundary camp, and leading to its southern extremity, the other (which we followed) taking a long sweep to the northward up another divide in the hills, and then following a south-easterly direction along the margin of the lake till it reaches Camp 10.

Mr. McDonald and I had stayed behind our party to visit the Boundary Camp, giving them orders to camp near one of the small lakes in the divide. When we came up, no signs of them were to be seen, and nothing but his (Mr. McDonald's) great experience in tracks, now so nearly obliterated by the rain as to be invisible to my unaccustomed eyes, afforded us a clue to the path they had taken.

It was dusk ere, on turning a sharp corner, the cheerful light of the camp fires revealed the position of the party, just as we were beginning to dwell on the unpleasant prospect of spending a supperless, blanketless night.

Camp 10 is situated in latitude  $49^{\circ} 01' 52''$  N., at a point on Lake Osoyoos where two long sandy bars projecting from either side to nearly the middle of the lake, and connected by a ford, admit of a passage across.

About  $4\frac{1}{2}$  miles south by east of us are the Okanagan and Similkameen Forks, the valley of the latter river, in which we are now camped, running a little to the westward of north.

Lake Osoyoos is 10 miles long and about  $1\frac{1}{2}$  miles wide. Between it and the great Okanagan, two smaller ones occur, the northernmost between seven and eight miles long, the latter about five, and the four are connected by the Okanagan river.

The soil in this part of the valley is poor and gravelly, though further north the land improves greatly in quality. On Osoyoos and the other lakes wild fowl are very numerous, and partridges and prairie chickens abound in the valley; grass is plentiful, timber scarce, and for the first time since leaving Fort Hope we missed the cheerful aspect of a blazing log in front of the tent door.

September 28.—To-day was cold but fine. We started late, having but a short day's journey before us, and crossing the lake at the ford, travelled three miles in a south-easterly direction along its margin. The trail here takes to the eastward, following a long and gentle ascent up a divide in the Okanagan Range.

We took this route and camped five miles up the divide on a small stream which runs into the Osoyoos Lake a short distance south of where we left it.

September 30 to October 2.—As nearly the whole of the remainder of the route is in American territory, a general outline of the features of the country will be as much as is necessary.

The trail, on leaving Camp 11 (which is in latitude  $48^{\circ} 58' 59''$  N.), runs a little north of east up the divide we had already commenced ascending. The slope is gradual, the trail good, the land terraced and covered with excellent round bunch grass, timber plentiful (viz. larch, pine, and aspen), and the soil of excellent quality. The summit 2,850 feet above the level of the sea commands a fine view of the Cascade Mountains west of the Similkameen, extending north and south, and affording the usual ocular illusion of ranges perpendicular to the line of vision. Looking east, the eye takes in an immense tract of country, more or less mountainous and intersected by winding valleys, embracing the Pend d'Oreilles and Cœur d'Aleur countries, and the unexplored regions north of the British Frontier.

It is difficult in a country so extremely mountainous to form a good idea of the bearings and extent of the different ranges.

It appeared to me, however, from present and subsequent observation, that this divide, after cutting through the Okanagan Range, also separates part of a broad extensive chain intersected in a tortuous line by the valley of the N-wohy-al-pit-kwu River, and thence passing eastward along the parallel to Fort Sheppard, near which point it is divided by the Columbia; thence north of the Pend d'Oreilles country, and nearly at right angles to the well-known Bitter Root Range, till it is lost amid the towering peaks of the Rocky Mountains.

Passing the summit of the divide, the traveller soon strikes the head waters of the "Siyakan" a rapid mountain brook which forks with the "N-wohy-al-pit-kwu" 25 miles from the "Osoyoos." The trail follows down this stream to its mouth and is generally good and at a gentle slope, except at the immediate descents to the "Siyakan" and "N-wohy-al-pit-kwu." The distance from the Siyakan Forks to Fort Colville by the valley of the latter river is about 85 miles. After striking the "N-wohy-al-pit-kwu" the trail runs south of east, and soon crosses the frontier. Pretty alternating prairies, extending to a considerable size at the embouchures of valleys, light soil, good bunch grass, mountains here and there falling bluff and perpendicular into the river, then retreating from it in low, broken, grassy masses, and a country generally park-like and pretty, complete the characteristic features of that portion of the N-wohy-al-pit-kwu valley comprised in the next two day's travel. The river is about the same size as the Similkameen, viz. from 20 to 50 yards broad, swift, shallow, and clear, and its banks are generally low and easily accessible. The trail, bad only in two or three places where it passes over unavoidable spurs, crosses the river from time to time; wild fowl are abundant, and excellent camping places exist all along the route.

October 3d-5th.—On the evening of the 2d October we again approached British territory by a long bend of the river to the northward, and camped on its right bank, in lat.  $48^{\circ} 59' 19''$  N. From



here the river passes north beyond the frontier, and augmented by a considerable branch from the northward, (possibly the main stream) soon resumes its easterly direction.

At the confluence of the three valleys occurs a large open plain, three miles by two, designated in the plan "La Grande Prairie." This plain, which according to my observations lies within the British line, had, previous to our arrival, been devastated by fire, and the young green grass, just springing up, contrasted refreshingly with the dry yellow hue of the surrounding herbage.

Little snow falls here in winter, and its sheltered position renders it an excellent "guard" for cattle and horses during that season.

Past "La Grande Prairie" the character of the valley changes entirely.

The open timbered country gives way to a tolerably dense forest of young fir and other trees; the valley sensibly contracts and is walled in by mountains of solid quartz; pasturage hitherto so good and plentiful is difficult to find, and the river again roars along over a rocky bed, and through precipitous mountain defiles.

In this portion fords frequently occur, unavoidable owing to the steep mountain bluffs, and the river takes several remarkable horse-shoe bends. The same general character of country, relieved here and there with patches of prairie and level bottom, extends to the mouth of the river, (33 miles) where it empties with a roar into the Columbia one mile above Fort Colville.

We crossed the Columbia, opposite the Fort, in bark canoes, propelled by long six feet paddles.

The river at this point is about 400 yards wide in the fall of the year, very clear, and very swift.

The Fort stands in a large open prairie, about 1,200 acres in extent, portions only of which are cultivated by Indians, the remainder being liable to inundation when the Columbia is at its height.

One mile below the Fort are the "Kettle Falls" of the Columbia, called by the natives "Schwan-a-te-koo" or "Sounding water."

I visited these falls during my stay at the Fort, and the clear blue water of this noble river dashing with a dull roar over a ledge of rocks 15 feet high, and sending a huge white cloud of foam into the air, is a sight well worth the short walk from the Fort.

Much more might be said on the topography and other general features of this district of the Columbia, but I propose to reserve further remarks for another occasion, and to bring my sketch of this interesting trip at once to a close.

## Part II.—MILITARY.

In connexion with that portion of my instructions directing me to notice such points in the Similkameen valley, or anywhere along the frontier, as may be suitable for the establishment of military posts, I have the honour to submit the following brief report of my observations:

Westward from the Similkameen valley, and nearly to the coast, extends a mountain region, so rugged and bleak, and so inaccessible and devoid of roads of communication, that this valley is the first point east of the Sumas, to which attention need be directed.

It and the Okanagan valley are the main thoroughfares to British Columbia from Washington territory, and indeed east of them, as far as Fort Sheppard, the country affords no known practicable means of ingress.

To these valleys, therefore, I chiefly directed my attention, and, as far as I can judge, natural features and advantages point to the "Keereemaous" bend of the Similkameen as the best position for a military post.

The bend opens (see map) into a fine broad valley, extending 12 miles southward to the frontier, which, if necessary, can be fortified with ease. The soil is rich, the land in the valley generally level, timber for building and other purposes plentiful, and water good; and further, easy access can be had to the adjacent Okanagan valley, either by crossing the low grassy spurs of the intervening range, or by a small valley in rear.

I should mention here (having omitted to do so in my topographical report), that the main route from Washington territory passes up the valley of the Okanagan River from its junction with the Columbia and forks at the mouth of the Similkameen, whence branch the two routes already described. An outpost in the Okanagan would guard the valley of that river, and need not be more than eight or nine miles from the main post in the "Similkameen."

As farther inducements to the establishment of the latter, I may state that little snow falls there in the winter, fish and wild fowl are plentiful in the neighbourhood, and grass abundant, and of excellent quality, and that, while a military post would guard the frontier from invasion, protection would at the same time be afforded to the lives and property of any settlers who might at some future time populate the adjoining country.

A great question now presents itself as to the means of communication between this district and the interior portions of British Columbia.

Even if it be practicable at an enormous expense to construct a tolerable waggon road across Manson Mountain, or even should a better route be found by following round the valley of the Coquahalla, there still remains the dividing ridge of the Cascades, and the route would any way be impracticable for at least seven months in the year. Through Lytton, therefore, or the Kayoosh district, by the valleys of the Thompson and Buonaparte River to Nicolas Lake and Fort Kamloops, and thence to the border, all supplies must eventually pass, and hence the necessity of establishing good means of communication with these points from either the Fraser River or the sea.

This further points to the probable future importance of towns at Lytton and Kayoosh with regard to the defence of the frontier, and leads me respectfully to suggest the advisability of an early exploration of the route from Howe Sound to the Upper Lillooet, regarding which I have received favourable information from a reliable source.\*

Should the result of such exploration prove favourable, and should it be considered advisable to construct on this route a good waggon road of communication, advantageous results would accrue to our mining districts. Kayoosh or Fountain would probably ere long become a town of considerable commercial importance, and from thence, as a general depôt, supplies might easily be forwarded to military and other posts between the Upper Fraser and the border.

\* The position of the head of "Jarvis Inlet" would also suggest the advisability of an early exploration in that quarter.

With regard to Fort Hope I may mention that nature has already fortified it with an almost impassable barrier of mountains.

All the practicable means of access to British Columbia, except from the sea, strike the Fraser north of Fort Hope. There is, therefore, no occasion for establishing a military post in the neighbourhood of Manson's Mountain, nor indeed can it be considered feasible to do so.

On the importance of defending the border east of Fort Shepherd future explorations will decide.

In connection with this subject it remains but for me to remark, that, from my own observation, and from information afforded me by Mr. M'Donald, I know a frontier road north of the 49th parallel to be practicable from the Similkameen, eastward to the N. Saa-app Lake in the N. Whoyalpitkwu Valley, and further that Captain Pallisser's explorations have determined the possibility of extending such a road from that point to Fort Shepherd, though his report on the intervening tract cannot be pronounced as favourable as might be wished.

### Part III.—GEOLOGICAL.

The geographical character of the several districts between Fort Hope and Fort Colville is throughout very uniform, the rocks belonging principally to the igneous and metamorphic series.

The bulk of Manson's Mountain appears to be granite tipped with clay slate, here and there presenting patches of white indurated clay, found on examination to contain fragments of white quartz.

This formation may be said to consist of granite with its felspar decomposed and reduced to a state of indurated clay; it extends to the dividing ridge of the Cascades, and partly into the valley of the Tulameen.

In the latter valley may be seen vast masses of white quartz, in all probability the exposed face of the rock, which, with granite constitutes a large portion of the district extending into the Similkameen valley.

On approaching the summit of the Tulameen Range, the quartz partially disappears, and is replaced by a species of variegated sandstone, in which traces of iron occur. To what extent the sandstone prevailed I had no opportunity of judging, the weather being snowy while I was there and the rocks as a general rule imbedded in peaty turf.

As we leave the Tulameen mountains, and descend into the valley below, indurated clay appears to predominate to a considerable extent. This clay varies in character as we approach the Vermillion Forks; a portion I noticed near that point being a white silicate of alumina mixed with sand. On one specimen which I picked up were the fossil remains of the leaves of the hemlock.

Further down, in the Similkameen valley, the clay acquires a slaty texture, and becomes stained with iron to a greater or less extent. Blue clay also exists, only, however, in small quantities.

The mountains bordering the Similkameen consist chiefly of granite, greenstone, and quartz, capped with blue and brown clay slate.

The beds of both the Tulameen and Similkameen are covered with boulders of granite of every description and colour, of greenstone and of trap, and vary in form and size.

The same character of boulders prevail on the river bottoms to a greater or less extent.

Like that of most of the other explored portions of British Columbia, the geological character of this region appears to indicate the high probability of auriferous deposits. In the lower portion of the Similkameen, and near the "Big Bend," gold was discovered shortly after I passed through by some of the men attached to the United States Boundary Commission.

Report pronounced the discovery a valuable one, as much as \$40 to the hand being taken out in three hours, without proper mining tools; but I cannot speak positively as to the truth of this statement, neither could I discover whether the place spoken of is in British or American possessions. Probability would suggest the former.

Beyond Osoyoos Lake I did not deem it necessary to pay much attention to the geological character of the country, the route lying almost entirely in American possessions. Suffice it to say, that but few features of interest presented themselves, and that in no place did I see any sign of stratified rocks.

### PART IV.—CONCLUDING REMARKS.

Having so far concluded my remarks on the topography and other features of the route, I would beg respectfully to submit a few suggestions on what appears to me the most feasible plan for settling up these and some other portions of British Columbia, already explored, and known to be capable of cultivation.

It is already an established and well recognized fact that west of the cascade mountains the greater portion of such lands as are capable of cultivation are either liable to inundation in the summer, or covered with a forest growth so thick as to afford but few inducements to emigrants.

The present undeveloped state of British Columbia, and the absence of any good roads of communication with the interior, would probably render futile any attempts to settle the Similkameen and other valleys in the vicinity of the 49th parallel.

Extensive crops, it is true, might probably be raised, but the emigrant would have to depend for the other necessities of life either on such few as might from time to time find their way into the country from Washington Territory, or on such as might, during four months in the year, be obtained from Fort Hope and other points on the Fraser River, and either of which could not be obtained but at prices too exorbitant for the pocket of the poor man.

It would seem therefore that the Buonaparte and Thompson River valleys are the natural starting points for civilization and settlement, and the remarks I had the honour to make in a preceding section on the importance of towns at Lytton and Kayoosh, with reference to the defence of the border, apply with equal force in the present question of settlement.

Starting from these points civilization would gradually creep forward and extend finally to the valleys on the frontier:

With its advance we should have good roads and cheap provisions, and while the agricultural resources of the country would thus by degrees become developed, the additional comfort that would



be placed within reach of the miner on the upper Fraser would hold out far greater inducements to his stay in the country than at present exist.

Further experimental researches will develop the natural resources of the soil in the valleys under discussion, and clear up any doubt as to its suitability for the growth of crops.

Should the result prove satisfactory, roads will be the first to develop its capabilities, and, viewing the matter in the light of general civilization, it would seem not unfair to adduce the successful cultivation of unpromising districts in other densely-peopled countries, in support of the probability of cultivation extending to large tracts of grass land on the mountain slopes and plateaux, and of the agricultural wealth of the country being thereby vastly improved.

I have, &c.  
(Signed) H. SPENCER PALMER, Lieut. R.E.  
New Westminster, Nov. 23rd, 1859.

Col. R. C. Moody, R.E.  
&c. &c.

TABLE of Latitudes, Longitudes, Altitudes, &c. of Camps.—Lieut. PALMER'S Route.

STATION.	Latitude.  N.	LONGITUDE.		Height in Feet above Sea Level.	Distance in Miles from last Station by Trail.	Remarks.
		E. of Fort Hope in Time.	W. of Green in Arc.			
	° ' "	m "	° ' "			
Fort Hope—Hudson Bay Fort -	49 22 21	- -	121 24 39	140	- -	No grass. Timber and water abundant.
Camp I.—Manson Mountain -	49 22 41	0 41.7	121 14 13	1,890	15	Little grass. Ditto ditto.
" II.—Stuchd-a-Choire -	49 20 57	1 17.6	121 05 15	3,640	19	No grass. Ditto ditto.
" III.—Bend of Tulameen -	49 22 15	1 59.8	120 54 42	3,260	15	Little grass. Ditto ditto.
" IV.—Tulameen Range -	No observations.			4,230	12	Wood, water, and grass plentiful and good.
" V.—Camp't, des Femmes	49 32 29	2 50.0	120 42 09	2,170	12	Ditto ditto.
" VI.—Vermillion Forks -	49 27 42	3 56.4	120 25 33	1,790	19	Ditto ditto.
" VII.—Similkameen Valley	49 24 26	4 41.2	20 14 21	1,600	16	Ditto ditto.
" VIII.—Ditto, near Na-is-new-luw.	49 12 54	5 44.6	119 58 30	1,275	21	Ditto ditto.
" IX.—Ditto, near Big Bend	49 03 20	6 24.6	119 48 30	775	22	Wood rather scarce; brush and grass plentiful.
" X.—Osoyoos Lake (crossing.)	49 01 52	7 24.2	119 33 36	630	18	Wood, water, and grass abundant.
" XI.—Divide Colville Range.	48 58 59	8 00.0	119 24 39	2,390	10	Ditto ditto.
" XII.—Siyakan Forks -	49 02 43	9 22.8	119 03 57	1,570	19	Ditto ditto.
" XIII.—N. Whoyalpit Kwu Valley.	48 54 41	10 22.9	118 48 55	1,420	20	Ditto ditto.
" XIV.—Ditto, near "La Grande Prairie."	48 59 19	11 34.3	118 31 04	1,360	18	Grass scarce.
" XV.—Ditto near Falls -	48 58 37	12 54.7	118 13 13	1,260	18	Everything plentiful.
" XVI.—11 miles from Colville.	48 46 36	13 12.2	118 06 36	1,050	18	
Fort Colville (H. B. Fort) -	48 38 03	13 22.6	118 04 00	830	11	Ditto.

Entire distance by trail from Fort Hope to Fort Colville, = 283 miles.

The longitude of R.E. observatory at New Westminster is approximately 122° 50' W., whence the above are determined.

H. S. PALMER,  
Lieut. Royal Engineers.

No. 34.

No. 34.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

(No. 2.) Victoria, Vancouver's Island, January 12, 1860.  
MY LORD DUKE, (Received March 5, 1860.)

I HAVE the honour to transmit, for your Grace's information, a return of the value of imports and customs receipts at New Westminster, British Columbia, for the twelve months ending with the 31st day of December 1859.

2. Your Grace will observe that this return shows an increase in the customs receipts for the December quarter—

- Of 103½ per cent. as compared with the March quarter;
  - Of 42½ per cent. as compared with the June quarter;
  - Of 16¼ per cent. as compared with the September quarter;
- The total receipts for the twelve months being 18,464*l*.

3. The duty of 12*s*. per ton on goods and wares carried from New Westminster to all other places in British Columbia came into operation on the 1st day of January 1860. It is estimated that the duty will produce about 8,000*l*. per annum, provided there be no

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increase of trade ; and should trade increase at the same ratio as last year the revenue derived from it will be in excess of that sum.

4. I trust it will soon be in my power to present to your Grace a statement of the entire public revenue collected for the past year in British Columbia, which will probably be over 50,000*l*.

I have, &amp;c.

His Grace the Duke of Newcastle.  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

Enclosure in No. 34.

Encl in No. 34.

RETURN of Customs Receipts, and Value of Imports for British Columbia, for the Year ending 31st December, 1859.

## CUSTOMS RECEIPTS.

						£	s.	d.
Quarter ending	31st March 1859	-	-	-	-	2,976	0	0
"	" 30th June 1859	-	-	-	-	4,242	0	0
"	" 30th September 1859	-	-	-	-	5,202	0	0
"	" 31st December 1859	-	-	-	-	6,044	0	0

Total amount of Customs Receipts for the Year - £18,464 0 0

## VALUE OF IMPORTS.

						£	s.	d.
Quarter ending	31st March 1859	-	-	-	-	175,111	46	35,022 6 10
"	" 30th June 1859	-	-	-	-	247,755	66	49,551 2 5
"	" 30th September 1859	-	-	-	-	207,848	07	41,569 12 0
"	" 31st December 1859	-	-	-	-	255,381	62	51,076 6 2

Total Value of Imports for the Year, calculating the Pound } 886,096 81 - 177,219 7 5  
sterling at 85 - - - - -

No. 35.

No. 35.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

(No. 5.)

Victoria, Vancouver's Island, January 12, 1860.

(Received March 5, 1860.)

MY LORD DUKE,

24th Para-  
graph, No. 224.  
18th Oct. 1859,  
page 65.

IN my report on the affairs of the colony of British Columbia, of the number and date noted in the margin, I did myself the honour of laying before your Grace a statement of the expense, inconvenience, uncertainty, and delays to which emigrants were exposed in making purchases of land in that colony.

2. I also stated that the Government surveys could not keep pace with the demand for public land, and I might, moreover, have added that the expense of moving surveying parties of the Royal Engineers to the various points where land is required for settlement and cultivation would probably exceed the money value of the land sold.

3. I at the same time informed your Grace that in order to remove so pregnant a cause of complaint, and to facilitate settlement and promote the lawful acquisition of unsurveyed agricultural land, pending the operation of the public surveys, I had authorized the occupation of land to the extent of 160 acres, with a pre-emptive right, by any person immediately occupying and improving such land and agreeing to pay the Government price, not exceeding 10*s*. an acre, whenever the land is surveyed and title granted.

4. I now forward herewith a Proclamation giving to my previous instructions the force of law, and also providing for the purchase, with the same limitation of the ultimate price, of larger tracts of unsurveyed country land, in addition to the land pre-empted, as may be desired by persons of larger means ; it being in that case also provided, in order to guard against the mere speculative holding of land, that 5*s*. an acre is to be paid down, and the residue at the time of survey.

5. This Act has been reviewed with much anxious consideration, and every precaution has been taken to adapt its machinery to the state of the colony, and to divest it of unnecessary forms, expense, and delay.

6. The district stipendiary magistrates will record the applications for land, and immediately report the same to the Commissioner of Lands and Works and to the Colonial Secretary, so that it will not cause any further drain on the funds of the colony.

7. The object of the measure is solely to encourage and induce the settlement of the country ; occupation is, therefore, made the test of title, and no pre-emption title can be perfected without a compliance with that imperative condition.



## PAPERS RELATING TO BRITISH COLUMBIA.

8. The Act distinctly reserves, for the benefit of the Crown, all town site land, Indian settlements, and public rights whatsoever; the emigrant will, on the one hand, enjoy a perfect freedom of choice with respect to unappropriated land, as well as the advantage, which is perhaps of more real importance to him, of being able to choose for himself and enter at once into possession of land without expense of money, while the rights of the Crown are, on the other hand, fully protected, as the land cannot be alienated nor title granted until after payment is received.

9. The system will, I trust, have the effect of enlisting the sympathies and to loose the energy, intelligence, and activity of the whole emigrant population in the public domain; adding daily to its value, while, it is to be hoped, the people who will become more and more attached to the soil, and more studious to acquire land rendered valuable by their own labour. Thus men who have no serious intention of settling in the country, and others who, on their first arrival, have not thought of buying land, become in the end devoted settlers, and, in their capacity of producers and consumers, valuable contributors to the public revenue.

10. Other good effects are expected to result from the operation of the Act; for example, every reason to believe that it will lead to the more rapid colonization of the country, and to greater economy in its survey, which can be effected hereafter, when more surveys are made, at a much smaller cost for travelling and conveyance than at the present time.

11. The district magistrates are authorized in all cases of dispute about land to proceed immediately in a summary way to settle boundaries, to restore possession, to abate encroachments, and to levy such costs and damages as they may think fit; a course of action which will have the happiest effect in preventing litigation and private acts of violence; in the redress of grievances and to guard against injustice on the part of the magistrates. An appeal from his decision may be carried to the Supreme Court of the Colony.

12. I have only further to express a hope that the measure may meet with the approval of Her Majesty's Government.

His Grace the Duke of Newcastle,  
&c.                      &c.                      &c.

I have, &c.  
(Signed) JAMES DOUGLAS  
Governor

Enclosure in No. 35.

(No. 17.)

### PROCLAMATION.

By his Excellency James Douglas, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-chief of Her Majesty's Colony of British Columbia and its dependencies, Vice-Admiral of the same, &c.

WHEREAS, by virtue of an Act of Parliament made and passed in the 21st and 22nd years of the reign of Her Most Gracious Majesty the Queen, and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland, in conformity therewith, I, James Douglas, Governor of the Colony of British Columbia, have been authorized by Proclamation issued under the Seal of the said Colony, to make laws, institutions, and ordinances, for the peace and good government of the same, and

Whereas, it is expedient, pending the operation of the survey of agricultural lands in British Columbia, to provide means whereby unsurveyed agricultural lands may be lawfully taken up by pre-emption in British Columbia by British subjects, and in certain cases to provide for the disposal of unsurveyed agricultural land in British Columbia by private contract.

Now, therefore, I, James Douglas, Governor of British Columbia, by virtue of the authority in me reposed, do proclaim, order, and enact,

1. That from and after the date hereof, British subjects and aliens who shall take the oath of allegiance to Her Majesty and Her successors, may acquire unoccupied and unreserved, and unsurveyed land in British Columbia (not being the site of an existent or proposed town, or available for mining purposes, or an Indian reserve or settlement,) in fee simple, under the following conditions.

2. The person desiring to acquire any particular plot of land of the character aforesaid, shall enter into possession thereof and record his claim to any quantity not exceeding 160 acres with the magistrate residing nearest thereto, paying to the said magistrate the sum of one pound sterling for recording such claim. Such piece of land shall be of a rectangular form, and the shortest side of the rectangle shall be at least two-thirds of the longest side. The claimant shall give the best description thereof to the magistrate with whom his claim is recorded, together with a map of the same, and identify the plot in question by placing at the corners of the land four stakes, stating in his description any other landmarks on the said 160 acres, which he may think of a noticeable character.

3. Whenever the Government survey shall extend to the land claimed, the claimant shall be entitled to the land so claimed as aforesaid, or his heirs, or in case of the grant of certificate of improvement after mentioned, the assigns of such claimant shall, if he or they shall have been in the occupation of the same land from the date of the record aforesaid, be entitled to purchase the same so pre-empted at such rate as may for the time being be fixed by the Government of British Columbia, not exceeding the sum of 10s. per acre.

4. No interest in any plot of land acquired as aforesaid, shall before payment of the purchase money, be capable of passing to a purchaser unless the vendor shall have obtained a certificate of improvement from the Government.

III.

## PAPERS RELATING TO BRITISH COLUMBIA.

magistrate that he has made permanent improvements on the said plot to the value of one acre.

Upon payment of the purchase money, a conveyance of the land purchased shall be executed in favour of the purchaser, reserving the precious minerals, with a right to enter and work the same in favour of the Crown, its assigns and licencees.

Priority of title shall be obtained by the person first in occupation, who shall first record his claim in manner aforesaid.

Any person authorized to acquire land under the provisions of this Proclamation may purchase, in addition to the land pre-empted, in manner aforesaid, any number of acres not otherwise appropriated, at such rate as may be fixed by the Government, at the time when such land shall come to be surveyed, not to exceed ten shillings per acre; five shillings to be paid down, and the residue at the time of survey.

In the event of the Crown, its assigns or licencees, availing itself, or themselves, of the reservation made in clause 5., a reasonable compensation for the waste and damage done shall be paid to the person entering and working to the person whose land shall be wasted or damaged as aforesaid. In case of dispute, the same shall be settled by a jury of six men to be summoned by the magistrate.

Whenever any person shall permanently cease to occupy land pre-empted as aforesaid, the magistrate nearest to the land in question may in a summary way, on being satisfied of such permanent cessation, cancel the claim of the person so permanently ceasing to occupy the same, and the land shall then be open thereto of any other person satisfying the requisitions aforesaid.

The decision of the magistrate may be appealed by either party to the decision of the judge of the Supreme Court of Civil Justice of British Columbia.

Any person desirous of appealing in manner aforesaid may be required before such appeal be published to find such security as may be hereafter pointed out by the rules or orders hereinafter directed.

The procedure before the magistrate and judge respectively shall be according to such rules and orders as shall be published by such judge with the approbation of the governor for the time being of British Columbia.

Whenever a person in occupation at the time of record aforesaid shall have recorded as aforesaid, he, his heirs, or assigns, shall have continued in permanent occupation of land pre-empted, or purchased as aforesaid, he or they may, save as hereinafter mentioned, bring ejectment or action against any intruder upon the land so pre-empted or purchased, to the same extent as if he were seized of the legal estate in possession in the land so pre-empted or purchased.

The provisions herein contained shall be construed as giving a right to any claimant to exclude free from searching for any of the precious minerals or working the same upon the conditions aforesaid.

The Government shall, notwithstanding any claim, record, or conveyance aforesaid, be entitled to take such portion of the land pre-empted or purchased as may be required for roads or other public uses.

Water privileges and the right of carrying water for mining purposes, may notwithstanding any purchase or conveyance aforesaid, be claimed and taken upon, under or over the said land pre-empted or purchased as aforesaid, by free miners requiring the same, and obtaining a grant therefor from the Gold Commissioner, and paying a compensation for waste or damage to the person whose land shall be wasted or damaged by such water privilege or carriage of water, to be ascertained by a jury in manner aforesaid.

Any dispute shall arise between persons with regard to any land so acquired as aforesaid, the parties in difference may (before ejectment or action of trespass brought,) refer the matter in dispute to the nearest magistrate, who is hereby authorized to proceed in a summary way to determine the possession of any land in dispute to the person whom he may deem entitled to have all intrusions, and award and levy such costs and damages as he may think fit.

Witness my hand and the Public Seal of the said Colony, at Victoria, Vancouver Island, this fourth day of January, A.D. one thousand eight hundred and sixty, and in the twenty-third year of Her Majesty's reign, by me,

JAMES DOUGLAS. (L.S.)

and of his Excellency.

WILLIAM A. G. YOUNG, Acting Colonial Secretary.

GOD SAVE THE QUEEN.

No. 36.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE OF NEWCASTLE.

No. 8.)

Victoria, Vancouver's Island, January 24, 1860.

TO HIS GRACE THE DUKE,

(Received March 13, 1860).

I HAVE the honour of transmitting herewith for your Grace's information the report from Mr. Ball, Assistant Gold Commissioner for the district of Lytton, on the gold prospects of the gold regions of British Columbia, situated in the valley of the Fraser River and its tributary streams, between Lytton and Quesnel River.

Ball's report is a reliable source of information, and, compared with the accounts of the miners who have mined in that part of the country, moderate in the description of its mineral wealth.

The report describes a large extent of country over which the "Blue Lead" of Quesnel's River has been



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traced exceeds 300 square miles, and should it be continuous, as it has proved rich wherever struck, its wealth must be fabulous.

4. A detachment of thirty Chinese miners arrived yesterday, being it is supposed the pioneers of a large immigration of that people for British Columbia.

I have, &c.

His Grace the Duke of Newcastle,  
&c. &c. &c.

(Signed) JAMES DOUGLAS,  
Governor.

### Enclosure in No. 36.

Sir,

Lytton, December

In compliance with the wish expressed in your letter of the 1st October I have forwarded you my remarks on the diggings of my own district, and as much information as I could obtain of new discoveries of the upper country in the neighbourhood of Fort Alexandria, as I learned from those who have lately returned from those parts.

The discoveries of gold in this district have this season extended from the banks of the river to the flats or benches situated above high water mark, many of which have produced more than on the banks, averaging on those flats where water can be brought to work with sluices to 12 dollars a man per day, and possessing an advantage over river claims, inasmuch as they are worked from the commencement of spring until the fall of the year uninfluenced by the rise of the main stream.

These discoveries have given more confidence to the miners, many of whom had the impression that the gold existed only on the bars, below high water mark, and in the river, and consequently seeing their mistake have been induced to prospect the flats, so that next season I have no doubt the second and even the third benches will prove to be equally rich, and be worked advantageously; the great drawback to their being properly worked at present being the large amount of capital required to build flumes and ditches from the mountain creeks on to the different benches, the difficulty increasing in proportion to the height of the flats from the river.

The discoveries on Thompson River are as yet but few, though from the nature and position of the banks of this river being similar to those of the Fraser (as the population increases) I have no doubt these benches will be worked proving as rich as many of those on the Fraser River, and affording a fine field for mining operations. Those miners who already have worked there and proposed to return to them next season, and their return will I hope induce many others to do so. In the neighbourhood of Thompson River there are many parts, which from my own personal observation, I have no doubt will prove auriferous, and at the same time recompense those who have made up claims (the country being intersected by the Nicholas and Bonaparte Rivers), on parts of which gold has been discovered; and when these rivers are carefully and properly prospected the nature and appearance of the country in comparison with other auriferous districts, many claims will eventually be discovered.

I am happy to inform your Excellency that the prospects and reports from the upper country are most favourable, and (although at present all mining operations are suspended, on account of the weather) many have been induced to winter in that district with a view of working on the rivers and creeks, at the lowest stage of water in the spring; and all who have lately returned from this district to proceed to California or winter below, intend to come back and work in the next season, the appearance of which, from the opinion of experienced California miners, presents a similarity to the rich districts of California than any part as yet discovered. The richest discoveries have been made in a creek called Horsefly Creek, situated about 60 miles to the east of Fort Alexandria, and running into a lake at the head of one of the branches of the "Quesnel" River. Five men and a party of five miners, in one week, with only two rockers, took out 101 ounces of gold, and then obliged to abandon the claim on account of the severity of the cold weather. These discoveries nearly as rich, and the general appearance of that part of the country, have induced experienced California miners, that the country is rich in gold, and that as it has been found on the banks of the creeks, on the banks and benches, and even in the different gulches, there is a rich stratum in some part of the district, and it is supposed that it will principally be found on this "Horse Fly" Creek, and in the neighbourhood of the Forks of the Quesnel River, as it is there that some miners have discovered the "Blue Lead" (a rich deposit of gold so well known in California), and which in this country presents all the same indications of a rich stratum, extending in a direction nearly north and south, and this "Horse Fly Creek," with a lateral extent of nearly ten miles.

This blue lead has already been traced a distance of 30 miles, and where occasional rich prospects were obtained, the first gold stratum lying at a depth of 25 feet from the surface, the indications of the upper strata being similar to those of the "Blue Lead" of California.

From the information I have been able to gather from those who have prospected the upper country I am satisfied there is a large extent of auriferous country, but the short season makes the season for mining operations at present very short, though the expectation of the richness of the claims will compensate for the shortness of the season.

A good trail to the upper country has been found from Lytton, joining the trail, (via the Fountain and Pavilion) at a point on Chapeau River about 40 miles from Lytton, the distance to Fort Alexandria about the same as from Cayoosh, and with the same trail.

\* Named after the discoverer, a French Canadian.

## PAPERS RELATING TO BRITISH COLUMBIA.

...ediment on this new trail is a quantity of fallen timber, but the storekeepers, and I am, I believe, about to subscribe a sum of money to pay for making the trail for pack animals.  
...able reports brought down from above, I am in hopes a large immigration will ensue, and needs but population to develop its resources and richness, and the nature of the country from Lytton to Alexandria will, I hope, be an inducement for many to settle down as

I have, &c.  
(Signed) HENRY M. BALL,  
J.P., and Assistant Gold Commissioner.

British Columbia.

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### No. 37.

DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

Victoria, Vancouver's Island, January 24, 1860.

(Received March 13, 1860.)

I have the honour to acknowledge the receipt of your Grace's Despatch, No. 22,\*  
and in reference thereto to express my satisfaction at hearing that  
Government had sanctioned the establishment of an assay office in British  
Columbia in consequence of suggestions contained in several of my despatches.

My opinion still remains unaltered, that it is a measure that will prove in many  
ways of great advantage to the colony.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

His Grace the Duke of Newcastle,  
&c. &c. &c.

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### No. 38.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

No. 10.)

Victoria, Vancouver's Island, January 25, 1860.

to His Grace the Duke,

(Received March 13, 1860.)

I HAVE duly received your Grace's Despatch, No. 27,† of the 29th September,  
subject of establishing an assay office in British Columbia, and transmitting for my in-  
formation the correspondence between the Treasury and the Colonial Office, showing  
which it is intended to adopt for carrying the measure into operation.

I have the honour to inform your Grace that it is my intention to proceed with the  
necessary buildings, furnaces, &c., &c., as soon as I am furnished with

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

His Grace the Duke of Newcastle,  
&c.

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### No. 39.

DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

Victoria, Vancouver's Island, January 25, 1860.

(Received March 13, 1860.)

I have the honour to acknowledge the receipt of your Grace's Despatch of the  
20th inst. informing me that the Master of the Mint has been authorized to  
procure the necessary elements for the establishment of an assay office in British Columbia,  
and a letter from the Treasury with an annexure, stating that Mr. Bacon  
has been engaged as melters.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

His Grace the Duke of Newcastle,  
&c.



No. 40.

BRITISH  
COLUMBIA.  
No. 40.COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

Victoria, Vancouver's Island, January 26, 1860.

(Received March 14, 1860.)

MY LORD DUKE,

I HAVE the honour to acknowledge the receipt of your Grace's Despatch of the 5th\* September last, upon the subject of the non-residence in the colony of British Columbia \* Page 101. of the officers who have been appointed by the Crown to conduct its affairs.

2. I need scarcely say that, as a general principle, I fully agree with your Grace as to the advantages attending a residence in the Colony; but circumstances have, however, compelled me to retain hitherto at Victoria some of the principal officers of the Government of British Columbia, and I would long ere this have reported to your Grace my reasons for adopting such a measure, had I not been under the impression that the whole circumstances were well known and understood by Her Majesty's Government.

3. The day after the arrival of Mr. Begbie, the Judge, he accompanied me to British Columbia, and after his return to Victoria, he was of the greatest assistance to me in discharging the functions of Attorney-General, which office he kindly fulfilled with the concurrence of Her Majesty's Government. Since the arrival at Victoria of the Attorney-General, Mr. Begbie has passed long periods in, and has been on circuit over the greater portion of British Columbia, and his personal communications to me upon his return have been most valuable, and have assisted me materially in framing laws, and in adapting the general system of government to the actual requirements of the people. Mr. Begbie has but recently returned from an extended circuit, and I do not think that his absence from the Colony under existing circumstances has in any way proved injurious. Mr. Begbie is, however, on the point of proceeding to British Columbia, to take up his permanent residence there.

4. Your Grace is well aware that I constantly require the Colonial Secretary to be with me, and the same remark applies to the Attorney-General.

5. With regard to the Treasurer, it is probably more for the convenience of the service and for the benefit of the Colony of British Columbia, that he should at present, and probably for some little time to come, reside at Victoria; but I beg your Grace will receive my assurance that so soon as I am satisfied that his stay here is detrimental to the public service, I will instantly require him to proceed to British Columbia.

6. I do not presume to enter more fully into particulars, for the opinion I have given accords with that already expressed by your Grace in previous despatches, referring to the Colonial Secretary and to the Treasurer; and I doubt not your Grace will readily understand of what little assistance would the Attorney-General be unless he be near to me.

His Grace the Duke of Newcastle,  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

No. 41.

No. 41.

COPY of DESPATCH from Governor DOUGLAS, C.B., to his Grace the  
DUKE of NEWCASTLE.

(No. 15.)

Victoria, Vancouver's Island, January 27, 1860.

MY LORD DUKE,

(Received March 13, 1860.)

I HAVE the honour of transmitting herewith copy of a proclamation, issued on the 20th of January instant, authorizing the Chief Commissioner of Lands and Works to sell town and suburban lots, and agricultural lands, which have been offered for sale at public auction and remain unsold, at the upset price.

2. It was intended to convey such powers to the Commissioner of Lands and Works by the Proclamation regulating the sale of public land, which issued on the 14th day of February 1859, but it appearing doubtful whether the powers in question have been actually conveyed by that instrument, in consequence of the expression "Except as afore-said" in the 4th clause of that Act, it was deemed advisable to remove the doubt, and to issue the present Proclamation.

His Grace the Duke of Newcastle,  
&c. &c. &c.

I have, &c.  
(Signed) JAMES DOUGLAS,  
Governor.

BRITISH  
COLUMBIA.

Encl. in No. 41.

Enclosure in No. 41.

(No. 18.)

PROCLAMATION.

By his Excellency JAMES DOUGLAS, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of Her Majesty's Colony of British Columbia and its dependencies, Vice Admiral of the same, &c., &c.

WHEREAS by virtue of an Act of Parliament made and passed in the 21st and 22nd years of the reign of Her most Gracious Majesty the Queen, and by a Commission under the Great Seal of the United Kingdom of Great Britain and Ireland in conformity therewith, I, James Douglas, Governor of the Colony of British Columbia, have been authorized by Proclamation, issued under the Public Seal of the said Colony, to make laws, institutions and ordinances, for the peace, order, and good government of the same.

And whereas it is expedient that town lots, suburban lots, and surveyed agricultural lands in British Columbia, which have been, or which hereafter may be offered for sale at public auction, and remain unsold, should be sold by private contract.

Now, therefore, I, James Douglas, Governor of British Columbia, by virtue of the authority aforesaid, do proclaim, order, and enact as follows:—

The Chief Commissioner of Lands and Works for the time being for British Columbia, and all magistrates, Gold Commissioners, and Assistant Gold Commissioners, by the said Chief Commissioner authorized in writing in that behalf, may sell by private contract any of the lots and lands herein-after mentioned, at the prices and on the terms herein-after respectively stated, viz.:—

(a.) Town and suburban lots which have been or hereafter may be offered for sale at public auction, and remain unsold, at the upset price, and on the terms at and on which the same were offered for sale at such auction.

(b.) Agricultural lands surveyed by the Government Surveyor which may or shall have been offered for sale at public auction, and remain unsold, at ten shillings per acre, payable one half in cash at the time of sale, and the other half at the expiration of two years from such sale.

And the purchaser of any agricultural land aforesaid shall purchase, subject to such rights of way and water as may be hereafter declared by some writing under the hand of the Chief Commissioner of Lands and Works aforesaid.

Issued under the Public Seal of the said Colony, at Victoria, Vancouver Island, this twentieth day of January, A.D. one thousand eight hundred and sixty, and in the twenty-third year of Her Majesty's reign, by me,

JAMES DOUGLAS.

By his Excellency's command,  
WILLIAM A. G. YOUNG,  
Acting Colonial Secretary.

GOD SAVE THE QUEEN.



## Despatches from the Secretary of State.

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### No. 1.

COPY of DESPATCH from Secretary the Right Hon. Sir E. B. LYTTON, Bart., M.P., to  
Governor DOUGLAS, C.B.

BRITISH  
COLUMBIA  
No. 1.

(No. 75.)

SIR,

Downing Street, June 3, 1859.

I HAVE to acknowledge the receipt of your Despatch No. 136,\* of the 12th April \* Page 5.  
last, containing further reports on the general state of British Columbia, and forwarding  
for my inspection a nugget of gold which had been recently found at Bridge River.

I beg to thank you for your attention in sending me this interesting specimen of the  
metallic produce of the new Colony.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) E. B. LYTTON.

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### No. 2.

COPY of DESPATCH from Secretary the Right Hon. Sir E. B. LYTTON, Bart., M.P., to  
Governor DOUGLAS, C.B.

No. 2.

(No. 76.)

SIR,

Downing Street, June 4, 1859.

I HAVE to acknowledge your Despatch No. 129,\* of the 11th of April last, \* Page 4.  
respecting the construction of the route by Harrison's River, and I have to express my  
satisfaction that you have been able to pay, from the revenues of the Colony, the entire  
cost of this undertaking.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) E. B. LYTTON.

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### No. 3.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

No. 3.

(No. 3.)

SIR,

Downing Street, June 30, 1859.

I HAVE to acknowledge the receipt of your Despatch No. 137,\* of the 12th April \* Page 7.  
last, reporting a serious injury to the interests of British Columbia which is caused by  
the practices of certain American owners of steam-boats running on the Fraser River.

I have referred to the opinion of the Law Advisers of the Crown the question raised  
by you as to your power legally to withhold a British register from vessels becoming  
British under such circumstances as those described in your Despatch, and I transmit for  
your information and guidance a copy of the report which I have received from them on  
this subject.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

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## No. 4.

BRITISH  
COLUMBIA.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 5.)

No. 4.

SIR,

Downing Street, July 4, 1859.

\* Page 11.

I HAVE to acknowledge the receipt of your Despatch No. 154,\* of the 14th of May, containing a report of the latest intelligence received from British Columbia.

I have to convey to you my thanks for the information which is supplied by your Despatch, as well as for your availing yourself of any chance opportunities of communicating to Her Majesty's Government the most recent intelligence respecting a Colony about which so much interest is felt in this country.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

## No. 5.

## No. 5.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 9.)

SIR,

Downing Street, July 28, 1859.

\* Page 12.

I HAVE to acknowledge the receipt of your Despatch No. 156,\* of the 23rd of May last, respecting the system of land sales and mining licences.

Vide Papers  
presented  
August 1859,  
p. 86.

I have little doubt that the Despatch from this office, No. 62,† of the 7th of May last, will have modified your views and practice as to deferred payments. On this subject I can do no more than express my concurrence in the views entertained by my predecessor.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

## No. 6.

## No. 6.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 10.)

SIR,

Downing Street, August 5, 1859.

\* Vide Papers  
presented  
August 1859,  
p. 39.

I HAVE had under my consideration your Despatch No. 39,\* of the 30th November last, requesting instructions as to the disposal of convicts sentenced to transportation in British Columbia. In reply I have to inform you that no British Colony remains available for the reception of offenders sentenced to penal servitude or transportation in any places out of the United Kingdom, and that the only resource available for their punishment is imprisonment with hard labour in the country where their offences are committed.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

## No. 7.

## No. 7.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 13.)

SIR,

Downing Street, August 29, 1859.

WITH reference to my predecessor's Despatch, No. 56, of the 28th of April, informing you that Her Majesty's Government were about to call for tenders for the conveyance of the mails between San Francisco and British Columbia, I have to acquaint you that on subsequent consideration it has been decided that the advantages which would be derived by the Colonies of British Columbia and Vancouver's Island would not prove equivalent to the large amount of subsidy that would be demanded for the establishment of this service. The same cause has precluded Her Majesty's Government from entertaining a proposal that had been submitted to them for carrying these mails through Canada and the Hudson's Bay Company's territory. I have therefore to instruct you to endeavour to secure the improvements in the existing service which you pointed out as desirable in your Despatch of the 16th November last,\* which I trust will suffice

\* Page 69.



to meet the requirements of the two Colonies till their progress and increasing importance shall ensure more advantageous proposals.

I have to add that the Postmaster General has obtained the permission of the United States Post Office to forward the correspondence for Vancouver's Island and British Columbia in closed mails, addressed to Her Majesty's Consul at San Francisco, who will forward them by the first eligible opportunity to their destination.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

BRITISH  
COLUMBIA.

No. 8.

No. 8.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.,  
(No. 14.)

SIR,

Downing Street, September 5, 1859.

I SEND you an Act passed in the recent Session of Parliament "to make further provision for the regulation of the trade with the Indians, and for the administration of justice in the North-western territories of America."

The Act applies, as you will perceive, to the territories over which the Hudson's Bay Company recently enjoyed a licence of trade, excluding both the charter territories and also British Columbia. It has been considered necessary by Her Majesty's Government and by Parliament that provisions to this effect should be made in order to enable the Crown to take measures for establishing order in the administration of the executive, and in the conduct of trade in those vast regions, in case any urgent reason for doing so should arise; but Her Majesty's Government have not any immediate intention of advising Her Majesty to exercise the powers given Her by this Act.

I should, however, be glad to receive from you at your convenience a report as to the persons whom you may consider eligible for magistrates in these North-western territories, with which your long service under the Hudson's Bay Company has made you to some extent familiar; and also as to any regulations for the conduct of the Indian trade which your experience may lead you to consider advisable.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

Enclosure in No. 8.

Encl. in No. 8.

ANNO VICESIMO SECUNDO & VICESIMO TERTIO VICTORIÆ REGINÆ.

CAP. XXVI.

AN ACT to make further Provision for the Regulation of the Trade with the Indians, and for the Administration of Justice in the North-western Territories of America. [13th August 1859.]

WHEREAS an Act was passed in the Forty-third year of King George the Third (chapter one hundred and thirty-eight), "for extending the jurisdiction of the Courts of Justice in the Provinces of Lower and Upper Canada to the trial and punishment of persons guilty of crimes and offences within certain parts of North America adjoining to the said provinces," and an Act was passed in the Session holden in the first and second years of King George the Fourth (chapter sixty-six), "for regulating the fur trade, and for establishing a criminal and civil jurisdiction within certain parts of North America;" and by the firstly herein-mentioned Act it was enacted, that all Offences committed within any of the Indian territories or parts of America not within the limits of either of the Provinces of Lower or Upper Canada, or of any civil government of the United States of America, should be and be deemed to be offences of the same nature, and should be tried in the same manner, and subject to the same punishment, as if the same had been committed within the Provinces of Lower or Upper Canada; and by the secondly herein-mentioned Act it was enacted, that it should be lawful for His Majesty, if He should deem it convenient so to do, to issue a commission or commissions to any person or persons to be and act as justices of the peace within such parts of America as aforesaid; and it was also enacted, that it should be lawful for His Majesty, by Commission under the Great Seal, to authorize and empower such persons so appointed justices to sit and hold Courts of Record for the trial of criminal offences and misdemeanors, and also of civil causes: And whereas no Courts of Record have been established or authorized as aforesaid, and it is expedient to make further provision for the administration of justice in criminal cases in the said Indian territories, and such other parts as aforesaid of America, and also to make provision for better regulating trade with the Indians in the territories and parts aforesaid: Be it therefore enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

I. It shall be lawful for Her Majesty, by the commission by which any Justices of the Peace are appointed under the said Act of King George the Fourth, or by any subsequent commission, or by any Order in Council, from time to time to authorize any such justice or justices to take cognizance of and try in a summary way all crimes, misdemeanors, and offences whatsoever, except as herein-after men-

III.

Justices of the  
Peace in the  
British Ameri-  
can Indian  
Territories

43 G. 3. c. 138.

1 & 2. G. 4,  
c. 66.

BRITISH  
COLUMBIA.

authorized to  
try offences  
summarily, and  
punish by fine  
or imprison-  
ment.

The power to  
establish courts  
of record not to  
be affected.

Her Majesty, by  
Order in Coun-  
cil, may make  
regulations for  
the trade with  
the Indians.

Hudson's Bay  
Company,  
British  
Columbia, and  
Vancouver's  
Island not  
affected.

tioned, within the local limits of the jurisdiction of such justices (or such parts thereof as Her Majesty may direct in this behalf), and to punish such crimes, misdemeanors, and offences by fine or imprisonment, or both; and it shall be lawful for Her Majesty, in manner aforesaid, from time to time to restrict or regulate the exercise of such jurisdiction as She may think fit, and to direct in what cases the same may be exercised by one or by more than one of such justices, and generally to make such provision concerning the exercise of such jurisdiction as to Her Majesty may seem expedient; and it shall also be lawful for Her Majesty, in manner aforesaid, to order or authorize the appointment of all proper officers to act in aid of such justices; and the said justices respectively may do or cause to be done all acts, matters, and things for the execution of their sentences, and in aid of their jurisdiction under this Act, which might be done or caused to be done by Courts of Record having jurisdiction in the like cases: Provided always, that where the offence with which any person is charged before any such justice or justices is one which is punishable with death, or one which in the opinion of such justice or justices ought, either on account of the inadequacy of the punishment which such justice or justices can inflict, or for any other reason, to be made the subject of prosecution in the ordinary way, rather than to be disposed of summarily, such justice or justices shall commit the offender to safe custody, and cause him to be sent in such custody for trial to Upper Canada, as provided by the said Act of King George the Fourth, or, where such justice or justices may see fit, to the Colony of British Columbia; and such offender may be tried and dealt with by any Court constituted in British Columbia having cognizance of the like offences committed there, and such Court shall have the like powers and authorities for this purpose as under the said Acts are given to any Court in Canada in the like cases.

II. Provided, That nothing herein-before contained shall be taken to repeal or affect the provisions of the said Act of King George the Fourth concerning the establishment of Courts of Record in the said territories, and where such Courts are established any offenders within the limits of the jurisdiction thereof may be committed for trial to such Courts instead of the Courts of Canada or British Columbia.

III. It shall be lawful for Her Majesty, by and with the advice of Her Privy Council, from time to time to make such rules and regulations as She may deem expedient for the conduct of the trade with the Indians, and for diminishing or preventing the sale and distribution of spirits to the Indians, or for promoting their moral and religious improvement, to be in force in all or any portions of the territories mentioned in the said Act of King George the Fourth which may not be included in any grant or licence for the time being in force under that Act.

IV. Nothing herein contained shall extend to the territories heretofore granted to the Company of Adventurers trading to Hudson's Bay; and nothing herein contained shall extend to the Colony of British Columbia, save as herein expressly provided, or to the Colony of Vancouver's Island.

No. 9.

No. 9.

Copy of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 15.)

SIR,

Downing Street, September 5, 1859.

\* Page 31.

I HAVE received your Despatch No. 189,\* of the 6th of July, transmitting for my approval and confirmation a return of the provisional appointments which you have made to offices in British Columbia between 1st January and 30th June 1859.

I am unable, in the absence of more full information than is supplied by your Despatch, to confirm these appointments. I cannot impress upon you too strongly the necessity of confining the expenditure of British Columbia within the limits of the revenue, and, in the present state of the finances of the Colony, of maintaining its establishments on the most economical scale, consistent with due regard to the proper administration of the Government, and the preservation of order in the country. At the present moment, when the efflux of population from the Colony is great and constant, I cannot feel satisfied of the necessity for the creation of so large a number of new appointments, involving an additional annual charge of nearly 3,000*l.* on its resources.

I have, therefore, to instruct you to furnish me with a return of the whole civil establishment of British Columbia, distinguishing the appointments that have been sanctioned by the Secretary of State, and affording me a full explanation of the grounds for the creation of those which you have provisionally established, and of the nature and extent of the duties attached to them. Pending the receipt of this report I am compelled to withhold my confirmation of the appointments in the list that accompanies your Despatch, for the creation of which the sanction of the Secretary of State has not been previously given.

I have also to instruct you to transmit to the Secretary of State, in future, quarterly returns, in the form of which I annex a copy, of all changes in offices, or new appointments in the Colony.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.



## No. 10.

BRITISH  
COLUMBIA.  
—  
No. 10.COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.  
(No. 16.)

SIR,

Downing Street, September 5, 1859.

I HAVE to acknowledge the receipt of your Despatch No. 167,\* of the 8th June, and to thank you for the general information it contains as to the state of British Columbia. I have also to request that you will convey to Mr. Justice Begbie the expression of my thanks for the very full and interesting account of his expedition up the country.

\* Page 16.

Governor Douglas, C.B.  
&c. &c.I have, &c.  
(Signed) NEWCASTLE

## No. 11.

No. 11.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

SIR,

Downing Street, September 5, 1859.

AMONG the many difficulties with which the organization of Government in British Columbia has to contend I cannot but think that the presence and residence in that colony of the several officers who have been appointed by the Crown to conduct its affairs is indispensable.

I have not received any special report from yourself on this subject; but from such information as I collect from other sources (subject to your better knowledge as to its correctness), it would appear that this essential duty is very much disregarded.

Being yourself Governor both of Vancouver's Island and British Columbia, you have necessarily a divided duty to perform; but the unavoidable absence which this occasions on your part cannot dispense with the closer attention of other British Columbian functionaries to their duties.

It is stated that the Judge, the Colonial Secretary, his assistant, the Attorney-general, and the Treasurer, are all at present residing in Vancouver's Island.

This state of things must be put an end to at once, and the gentlemen in question must be warned that they must repair with the least practicable delay to the scene of their duties, or, if they decline to do so, must at once resign their situations. I am aware that there may be difficulties in finding residences in a colony just commencing its existence; but these difficulties must be overcome, as they would by this time have been overcome, had not the close neighbourhood of the colony of Vancouver's Island afforded so easy a means of absenting themselves for the time from their posts.

Governor Douglas, C.B.  
&c. &c.I have, &c.  
(Signed) NEWCASTLE.

## No. 12.

No. 12.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.  
(No. 22.)

SIR,

Downing Street, September 19, 1859.

YOUR Despatches noted in the margin,\* relating to the establishment of an assay office in British Columbia, have been considered by Her Majesty's Government, and a communication will be immediately addressed to the Master of the Mint regarding the arrangements necessary for giving effect to this design. Her Majesty's Government have not overlooked the objections which suggest themselves to the work of a refinery and assay being undertaken by a Government establishment; but in view of the example derived from the experience of California, and having regard to the advantages to the miners in ascertaining and realizing their treasure, as well as to the facilities which will be afforded in the collection of a revenue from an export duty on gold, Her Majesty's Government have given their sanction to the measure.

\* No. 135,  
April 11, 1859,  
page 4;  
No. 158,  
May 25, 1859,  
page 13.Governor Douglas, C.B.  
&c. &c.I have, &c.  
(Signed) NEWCASTLE.

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No. 13.

No. 13.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.  
(No. 24.)

SIR,

Downing Street, September 23, 1859.

\* Page 26.

I HAVE to acknowledge your Despatch No. 182,\* of 2nd July last, in which you represent that the cost of the military force now stationed in British Columbia, with the heavy charge of colonial pay, is more than the finances of the Colony can at present bear, and urge on Her Majesty's Government the necessity of assuming some part of it.

From this Despatch, and from your other correspondence, I am not sure whether you clearly understand, that it was never the intention of Her Majesty's Government to throw the entire cost of this military force on the Colony. Their regimental pay is to be defrayed from Imperial funds.

But with regard to the colonial pay and allowances, I cannot depart from the instructions already given you by Sir E. B. Lytton, being confident that the resources of the Colony are such as will in all probability enable it to overcome existing difficulties, and provide for this portion of its expenditure within a reasonable time.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

No. 14.

No. 14.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.  
(No. 27.)

SIR,

Downing Street, September 29, 1859.

• Page 101.

WITH reference to my Despatch No. 22,\* of the 19th inst., acquainting you that Her Majesty's Government had sanctioned the establishment of an Assay Office in British Columbia, I transmit to you for your information, the copy of a correspondence between the Treasury and this department, showing the arrangements which it is intended to adopt for carrying this measure into operation.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

Encl. in No. 14.

Enclosure in No. 14.

SIR,

Treasury Chambers, September 19, 1859.

WITH further reference to your letter of the 11th ultimo, I am directed by the Lords Commissioners of Her Majesty's Treasury to transmit herewith copy of a Report from the Master of the Mint on the subject of the establishment of a Government assay office and refinery in British Columbia, and I am to request that you will inform the Duke of Newcastle that the arrangements suggested by the Master of the Mint appear to my Lords to be judicious, and if his Grace should be of the same opinion, my Lords will authorize Mr. Graham to engage the services of the persons recommended by him, on the conditions proposed, and to provide the necessary stores, &c. Their Lordships consider that the best course to follow in regard to the preliminary expenses will be to advance the sum of 2,000*l.*, suggested by the Master of the Mint, out of the grant for British Columbia, on the understanding that the amount will be repaid from the colonial revenue.

H. Merivale, Esq., C.B.  
&c. &c.

I have, &c.  
(Signed) GEO. A. HAMILTON.

Sub-enclosure.

SIR,

Royal Mint, September 9, 1859.

WITH reference to your letter of the 30th ultimo, transmitting papers relative to the establishment of an assay office and refinery in British Columbia, and informing me that their Lordships were prepared to sanction the necessary proceedings for the establishment of a Government assay and refinery in British Columbia, and requesting me to report to their Lordships on the arrangements which should be adopted for the purpose, I beg to report accordingly as follows:—

From the success which has attended the assay and melting department at Sydney established by Government, it may reasonably be expected that such an establishment as that contemplated in British Columbia will be self-supporting from the first, and in a short time highly remunerative, for the income of the Sydney Mint last year was 15,000*l.*, and the whole expenses 12,000*l.*; the large revenue stated being entirely derived from fees on operations of melting and assaying executed for the public, while, as the yield of gold-fields of British Columbia appears to approach to if it does not already exceed that of the province of Victoria, the receipts are likely to be on a large scale. The superior intelligence and energy of the resident Superintendent are a further guarantee of the success of the undertaking. It is very necessary, however, to occupy the ground as soon as possible, and anticipate the erection of private refineries.



Captain Gosset, in a report dated 25th April 1859, which he addressed to the Acting Secretary of the Colony, suggests the following organization for the establishment, with the probable expenses for the first and second years :—

BRITISH  
COLUMBIA.

				First Year.			Second Year.		
				£	s.	d.	£	s.	d.
One assaying officer	-	-	-	400	0	0	450	0	0
One smelting officer	-	-	-	400	0	0	450	0	0
Two assistants	-	-	-	500	0	0	600	0	0
One accountant clerk	-	-	-	300	0	0	350	0	0
Implements	-	-	-	1,000	0	0	100	0	0
Transit of party, stores	-	-	-	1,000	0	0	—		
Buildings	-	-	-	500	0	0	—		
				£4,100 0 0			£1,950 0 0		

This scheme appears to be the result of careful consideration, and I have no hesitation in recommending it to the favourable attention of their Lordships, slightly modified as follows :

				First Year.			Second Year.		
				£	s.	d.	£	s.	d.
One assayer	-	-	-	450	0	0	500	0	0
One assistant assayer	-	-	-	300	0	0	350	0	0
One melter (if obtainable)	-	-	-	450	0	0	500	0	0
One operative melter	-	-	-	250	0	0	300	0	0
One accountant clerk	-	-	-	300	0	0	350	0	0
Three months' half-pay to all the staff, calculated from day of appointment	-	-	-	218	15	0	—		
Stores sufficient for one year's consumption	-	-	-	1,000	0	0	100	0	0
Transit of party and stores (including 100% outfit and passage-money to each of four officers, and 70% to the operative melter)	-	-	-	800	0	0	—		
Buildings	-	-	-	500	0	0	—		
				£4,268 15 0			£2,100 0 0		

The persons appointed to be assured of their salaries for two years and a half, as proposed by Captain Gosset, the operative melter to be further allowed 50% for return passage-money if he chooses to return home after serving the time specified.

The great difficulty in carrying out the present scheme is the lowness of the salaries offered for professional services. At the Sydney mint the assayer is allowed 580% the first year, and 630% the second, and yet, with this larger salary, the greatest difficulty was experienced in finding a qualified person on the occurrence lately of a vacancy in the office. I am happy, however, to be able to inform you that no difficulty exists at present in filling up the offices of assayer and assistant assayer at the salaries which I have specified. It will also be possible I believe to obtain the services of a qualified operative melter; but great difficulty is experienced in finding a suitable person practically qualified to act as the head of this branch (as melter) for the salary offered. Such an officer is desirable to give weight and responsibility to the establishment, but not I believe indispensable. In the absence of a melter from the staff, one or both of the assayers may be instructed before embarking, so as to be able to conduct the melting department with the assistance of the operative melter.

The name of an accountant clerk has been suggested by Captain Gossett, Mr. Hiff, at present a clerk in the London and Westminster Bank, with whom I can communicate, and report upon his qualifications, if it is the pleasure of their Lordships.

As the assayers and melters will be fully occupied for at least two months in collecting and preparing (under proper supervision) the numerous implements, apparatus, and material required in their respective departments, the first step to be taken will be to nominate persons to these offices. In the pressing circumstances of the case, I may perhaps be allowed to submit at once the names of such officers as I have already selected, after full inquiry, for recommendation to their Lordships.

As assayer, Mr. Francis George Claudit. Mr. F. G. Claudit is 23 years of age. He is younger brother of Mr. Frederick Claudit, of Cannon Street, City, a professional assayer of eminence, and has been assistant to his brother for several years.

As assistant assayer, Mr. Frederick Henry Bousfield, 20 years of age, who has also been a junior assistant in Mr. Claudit's assay laboratory for the last three years. Both the gentlemen named have received a good scientific education, and are qualified to analyze ores, and act generally as analytical chemists, and if sent, will prove, I have no doubt, a valuable acquisition to the Colony.

Of the early completion of the staff, with or without a principal melter, I entertain no doubt. It is desirable that funds should be immediately available to the extent of about 2,000% for the expenditure to be incurred for stores, outfit, and salary in this country. On the institution of the Sydney mint, the Master of the Mint was authorized to make the necessary advances for such purposes from the mint cash account, to be afterwards refunded by the Colonial Government. But the course to be pursued on the present occasion I must leave to the judgment of their Lordships.

It does not appear to me that any necessity exists for the exercise of a continued supervision by the Home Government of the projected assay office and refinery in British Columbia beyond the assistance, in its first establishment, proposed to be granted in this country.

The future management of the establishment may be safely left with the Colonial authorities.

I have, &c.  
(Signed) THOS. GRAHAM.

BRITISH  
COLUMBIA.

SIR,

Downing Street, September 30, 1859.

I AM directed by the Duke of Newcastle to acknowledge the receipt of your letter of the 19th instant, with its enclosure from the Master of the Mint, stating the arrangements which he would recommend in the establishment of a Government assay office and refinery in British Columbia.

I am desired to state that the Duke of Newcastle concurs in the suggestions of the Master of the Mint, and would request their Lordships to authorize their being at once carried into effect.

G. A. Hamilton, Esq.  
&c. &c.

I am, &c.  
(Signed) H. MERIVALE.

No. 15.

No. 15.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 29.)

SIR,

Downing Street, October 20, 1859.

\* Page 40.

I HAVE to acknowledge the receipt of your Despatch No. 206,\* of the 18th of August last, forwarding a report lately received from Colonel Moody, of a reconnaissance of the Harrison and Tillooet route to the Upper Fraser, under the command of Lieutenant Palmer, R.E.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

No. 16.

No. 16.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 30.)

SIR,

Downing Street, October 20, 1859.

\* Page 32.

I HAVE to acknowledge the receipt of your Despatch No. 201,\* of the 16th August last, enclosing the report of an overland journey of survey in the districts of British Columbia, bordered on the Thompson, Fraser, and Harrison Rivers, conducted by Lieutenant Richard Mayne of Her Majesty's ship "Plumper."

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

No. 17.

No. 17.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 31.)

SIR,

Downing Street, October 21, 1859.

\* Page 49.

I OBSERVE in your Despatch of the 23rd August, No. 207,\* that you express your anxious wish for the arrival of the gun-boats promised for the service of British Columbia by my predecessor in his Despatch of the 10th† of last March.

† Vide Papers  
presented  
August 1859,  
p. 81.

Having made inquiries of the Admiralty on this subject, I learn that the two gun-boats in question were despatched on the 28th of last August, that they sailed from St. Vincent on the 22nd ultimo, and that they were then bound to the River Plate, with orders to the Admiral on the station to send them on as soon as he could spare them.

The "Termagant" (screw frigate) was to accompany them; but I apprehend she was destined for the general service of the station.

I take this opportunity of apprizing you that Her Majesty's Government have ordered the "Topaze" and "Clio" to join the squadron on the north-west coast of America.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.



No. 18.

BRITISH  
COLUMBIA.  
—  
No. 18.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 32.)

SIR,

Downing Street, October 21, 1859.

WITH reference to my Despatch of the 29th September, No. 27,\* on the subject \* Page 102.  
of the establishment of an assay office and refinery in British Columbia, I have to inform you that the Master of the Mint has been authorized to carry into effect the arrangements which have been proposed for the accomplishment of this object.

I now enclose you the copy of a Letter from the Treasury, with an annexure, from which you will learn that Mr. Bacon and Mr. Hitchcock have been engaged as melters.

I have, &amp;c.

Governor Douglas, C.B.  
&c. &c.

(Signed) NEWCASTLE.

No. 19.

No. 19.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 33.)

SIR,

Downing Street, October 28, 1859.

(Answered, No. 27, February 25, 1860.)

I HAVE to thank you for your Despatch of the 23rd August, No. 207,\* reporting \* Page 49.  
upon the state of British Columbia down to that date. There is much in that report which affords satisfactory evidence of the value of this Colony as a British possession; but it is impossible to peruse your Despatch without being struck with the little progress which has been made in the communications into the interior.

From the large expenditure incurred on account of the Harrison Liloett road, and the zeal which was so early manifested in the Colony for its formation, Her Majesty's Government were led to suppose that a route would be opened for the miners, which would considerably abridge the distance in reaching the scene of their labours, and facilitate the transport to them of the means of subsistence. I now learn that this work is being faintly prosecuted by the Royal Engineers, under the command of Captain Grant; that funds to the extent of 30,000*l.* are needed for its completion, besides, as you inform me, "the helping hand of Government on all sides." You throw out a suggestion that this pecuniary assistance could be easily raised by way of loan, either in England or in Vancouver's Island, provided its payment were guaranteed by Parliament. I think it right to lose no time in disabusing you of the impression you allow yourself to entertain that the Imperial Parliament could be recommended to take the course you wish. Both Parliament and the English public claim from British Columbia an energetic development of the great natural resources with which it is endowed.

The admonitions which have been so ably and so frequently proffered by my predecessor, that British Columbia should look to her own exertions for success, must not pass unheeded, but a practical exemplification of that advice must be exhibited. Her Majesty's Government have applied to Parliament already for advances in aid of the Colony to an extent which shows that no reasonable demands have been refused when proved to exist; but this assistance must not be drawn into a precedent to be followed on all occasions, nor lead you, or the inhabitants of the Colony, to expect that this country shall supply you with the means of developing those resources, which it is your duty to make the most of yourselves. I am explicit with you on this point, and wish you to understand that Her Majesty's present Government, sharing completely the sentiments of the late Government in respect to British Columbia, cannot venture to ask Parliament for any such guarantee as you desire.

2. You have on many occasions adverted to your intention of levying an export duty on gold; but as no report has reached this office of your having done so, I conclude that impediments have arisen to frustrate this very necessary measure. Now, however, that it has been determined to set up a Government assay office in the Colony, you will lose no time in resorting to the expedient for which you have pressed Her Majesty's Government to give you such facilities as are requisite.

3. I am glad to hear that the miners have been so successful in their pursuits on the Thompson and Quennel Rivers. I wish it were in my power to assist them in regard to banks of deposit. But these conveniences of a highly civilized state of society will accompany wealth by degrees, and can scarcely be looked for at so early a period of

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advancement as British Columbia has yet arrived at. Possibly some arrangements may be made with the Bank of British North America, which has the power and intention of carrying on banking business in Vancouver's Island and British Columbia.

4. The newspapers enclosed in your Despatch contained intelligence of a highly interesting nature, and I will thank you to send me more from time to time.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

No. 20.

No. 20.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 3.)

Downing Street, January 7, 1860.

SIR,

I TRANSMIT to you herewith the copy of a Letter which has been addressed to this Department by Captain Clarke, R.E., late Surveyor General of the Colony of Victoria, accompanied by a proposed scheme for the disposal of the Crown lands in British Columbia.

My attention is at present occupied in the consideration of the best means by which the country lands of the Colony can be made more readily available than is the case at present for occupation by agricultural settlers, and I shall be glad if in the meantime you will give your consideration to the scheme suggested by Captain Clarke, and will furnish me with the opinion which your experience and local knowledge may lead you to form of its applicability to the circumstances of British Columbia.

Governor Douglas C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

Encl. in No. 20.

Enclosure in No. 19.

MY DEAR SIR,

Army and Navy Club, Monday.

I SEND you a report on the British Columbian Papers, and which I now return.

I have written this report in the form of a proposed Order in Council, under the second section of the Act of 1858, providing for the government of British Columbia, explaining each section as proposed.

I am aware that I have gone far beyond the intention with which these papers were sent me, but I found in reading them so many points suggesting themselves, as well as the difficulty of explaining an isolated portion of a system, that I have been rather forced to write more than was perhaps necessary.

Even as it is, I almost fear that I have failed to explain clearly a system which, if it is adopted in British Columbia, will effectually secure its settlement without, on the one hand, playing too much into the hands of the Americans, or on the other, checking immigration from any quarter.

As I believe that but little time ought to be lost to give to British Columbia a clearly defined land system—whatever system may be adopted—I have sent the report as first written. This, and as most of last week I was engaged in Colchester, will I trust plead for me for the very imperfect shape I send this report.

The Under Secretary of State.

Believe me, &c.  
A. CLARKE.

Sub-enclosure.

## CHAPTER

SECTION . Alienation of Crown lands to be by sale at public auction as hereafter described.

SECTION . Excepting from above provision country lands once or oftener submitted for sale at auction, and not bought, which may be purchased by contracts with Governors or officers named to receive purchase-money; also lands required for the purposes of Government, either general or municipal, or held under public trusts, where trustees are named or approved by executive Government, or incorporated in legislative acts; also with respect to engagements made by the Crown to naval and military settlers.

SECTION . Province to be divided into counties, hundreds, and parishes.

SECTION . Lands to be distinguished into town and country lots.

SECTION . Authority to Governor to convey.

SECTION . No lands to be alienated or conveyed till surveyed and limits marked on public charts and boundaries, &c. described in registers.

SECTION . No grant to cover alienation of more than one square mile, or 640 acres, or no greater area to be offered at auction than said quantity in one lot.

SECTION . Lowest upset price to be five shillings per acre.



SECTION . Upset price of town lots to be fixed by Governor in Council.

SECTION . Town lots to be sold only at auction.

SECTION . Power to Governor in Council, in case of country lands, the probable value of which is enhanced by circumstances, to raise upset price to approximate value.

SECTION . All lands (town and country) put up to auction at prices respectively stated in schedule of sale, will be declared to be purchased by the bidder of the upset price, or the highest bidder above it, provided he shall pay down then and there the whole amount of purchase money, or a deposit of 25 per cent. on the amount of purchase money, the remainder to be paid within 60 days from date of sale.

SECTION . Purchaser to sign sale book.

SECTION . Should purchaser neglect to pay balance of purchase money within 60 days, the deposit of 25 per cent. will be forfeited, and the land, if classed as country land, be declared open for future purchase, either at auction, or as hereafter prescribed.

SECTION . Country lands once offered for sale, and for which no offer has been made, or on which the deposit has been forfeited, may, at discretion of Governor in Council, be advertised as open for selection or purchase by private contract at prices affixed.

SECTION . All applications for land to be purchased by selection, or private contract, to be made in writing, and purchase money deposited.

SECTION . As far as practicable, all lands to be sold in or near site of such lands.

SECTION . All lands open for selection or purchase by private contract should, for twelve months after date for first advertisement, be subject to selection only at the nearest Government office, or magisterial bench to site of such lands, and then subsequently only at the Chief Crown Land Office.

SECTION . All contemporaneous or conflicting applications for same land to be determined at auction.

SECTION . All lands to be sold by auction, or otherwise, to be advertised at least 30 days before time or date of sale.

SECTION . All lands sold to be described with purchaser's name attached, and advertised within reasonable time after date of sale.

SECTION . Registers, with charts attached, describing such lot and subsequent history to be kept in Chief Crown Lands Office.

SECTION . Beyond the limits of survey, or, in other words, beyond ten miles from the nearest lands surveyed, sold, or ready for sale, licences on application to the nearest bench of magistrates may be issued to persons desirous of selecting land for settlement and the immediate purpose of cultivation or other lawful occupation.

SECTION . Such applications to be made in writing, setting forth description of site selected, intention of occupation, and readiness to purchase land when offered for sale, or to relinquish it, if required for public purposes, or purchased by other or higher bidder.

SECTION . Licence to issue for one year only: fresh application required for renewal.

SECTION . Fee fixed on licence.

SECTION . In granting this concession of sanctioning the occupation of land under annual licence liable to revocation at any time for public purposes, the Crown, desirous of protecting the property and industry of the licensee, will grant, in case of sale of land occupied, a full and fair valuation for improvements made on its land, such valuation to be attached to the upset price of land when offered for sale at auction, and to be paid down by any purchaser other than the licensee, should he not have been able to obtain the land.

SECTION . Similar licences to issue for occupation of lands, limited in area, for business purposes, within the sites of proposed townships, or in and on gold-fields.

SECTION . Same protection afforded licensees within towns, &c., as in country lands.

## CHAPTER

SECTION . Without the boundaries of declared hundreds, land for depasturage of stock may be occupied under annual licence; amount of licence fee to be determined by capability of land; or, when two or more applicants wish for same land, the amount of licence to be determined at auction, in which case highest bidder to have right of renewal of depasturing licence for years. This licence, it being distinctly understood, to lapse when all or portion of land occupied under it be brought within a hundred, be applied for for purchase, or be occupied by miners working for gold, or for extended mining operations, or required for public purposes; in any of which cases proportionate amount of rent to be returned.

SECTION . If land occupied for depasturage be sold during term of licence, or at expiration of licence, original licensee not receiving renewal at auction, or otherwise, valuation of improvements be allowed to outgoing licensee, to be paid by purchaser or incoming occupier.

SECTION . Within the limits of proclaimed hundreds, depasturing licences to be issued to residents or purchasers of land within said hundreds.

SECTION . Annual licences to be issued to persons to fell timber, remove stone, open brick-fields, &c.

SECTION . On the site of probable townships, and on the gold-fields, where land for building, &c. has not been sold, business licences to be issued, annual, renewable; such licences not on renewal to be subject to auction.

SECTION . Fees payable on said business licences to be in proportion to frontage to street or thoroughfare occupied, but under one license not to exceed feet.

## CHAPTER

SECTION . Declaring undesirable to sell auriferous land, but when land sold gold in it conveyed to purchasers with soil, but subject to tax, duty, or royalty as other gold from Crown lands.

SECTION . Annual licences to mine for gold on Crown lands to issue to individual miners.

## III.

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- SECTION . Leases of "worked-out" gold-fields, extended sluice washings, for puddling machines, quartz reefs, deep sinkings, to issue at a minimum upset price of per acre or per yard of reef.
- SECTION . Extent of claim regulated by local legislation.
- SECTION . Power to associated miners to divert course of streams, cut sluices, races, &c., &c.
- SECTION . Similar power for mills either for quartz crushing, sawing timber, &c., laying down tramways, rails, &c.

## CHAPTER

SECTION . General rules regulating survey with regard to main roads, navigable waters, permanent streams, lakes, springs, general size and proportion of lots, &c.

SECTION . Power reserved in grants for the Crown or its servants to open roads, &c., stating basis on which compensation should be given.

SECTION . General power to justices of the peace to control mining operations when injurious to public.

SECTION . Publication of the names of all licence holders, applications for land, &c., to be required.

SECTION . Appropriation of revenue.

SECTION . All lands sold or occupied liable to general or local rates.

SECTION . General powers to Governor in Council to alter, amend, and give effect to, &c., as long as not repugnant to general tenor of these orders.

SECTION . All licences to issue from open bench in certain cases. Bench to obtain approval of Governor.

SECTION . Conviction before bench or higher court, licence to be forfeit.

SECTION . Appeal to Governor in Council from above.

SECTION . Justices to be Commissioners to give effect to these orders.

No. 21.

No. 21.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 9.)

SIR,

Downing Street, February 18, 1860.

\* Page 69.

I HAVE had the honour to receive your Despatch No. 231,\* of the 10th of November, acknowledging some Despatches from my predecessor, on the disposal of land in British Columbia. No practical question is raised by this communication, and it is unnecessary for me to enter further into the particular question to which it relates.

† Page 106.

But I may take the present opportunity of cautioning you (although the caution is perhaps unnecessary), that in transmitting to you in my recent Despatch No. 3,† of the 7th of January, Capt. Clarke's scheme for the disposal of lands, you are not to suppose me to have done so as a preliminary towards carrying such a scheme into execution by the instrumentality of an Order of Her Majesty in Council. I think that the subject is not one fit to be dealt with by that authority, and that any attempt to frame in this country regulations entering so much into detail would be misplaced. My object was merely to put you in possession of the views of a gentleman of great ability, who formerly occupied a high position in Australia, and enjoyed the confidence of the colonists, upon the best means of meeting difficulties such as he had himself encountered in administering the affairs of a rapidly growing Colony, in order that you might have the benefit of his experience. You will be able to judge for yourself how far the principles embodied in his scheme would be of any assistance to you in British Columbia, subject of course, in case you approve those principles, to all the modifications of detail which the difference of local circumstances might require.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.

No. 22.

No. 22.

COPY of DESPATCH from the DUKE of NEWCASTLE to Governor DOUGLAS, C.B.

(No. 12.)

SIR,

Downing Street, February 28, 1860.

\* Page 78.

I HAVE to acknowledge the receipt of your Despatch No. 241,\* of the 23rd December, enclosing a copy of a letter from Colonel Moody relative to the portions of land which it may be desirable to reserve in Burnard's Inlet for naval purposes.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.



## No. 23.

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COLUMBIA.

No. 23.

COPY of DESPATCH from the DUKE of NEWCASTLE to GOVERNOR DOUGLAS, C.B.

(No. 17.)

SIR, Downing Street, April 16, 1860.  
 I HAVE to acknowledge the receipt of your Despatch No. 218,\* of the 13th of September, enclosing copies of the following Proclamations issued by you for the Colony of British Columbia, viz.— \* Page 51.

No. 7. Proclamation dated 15th May 1859, for the naturalization of aliens.

No. 8. Proclamation dated 19th May 1859, respecting oaths.

No. 9. Proclamation dated 2nd June 1859, altering in some respects the Act for levying duties of Customs on imports into British Columbia.

No. 10. Proclamation dated 15th June 1859, imposing tonnage, pilotage, and harbour dues at the port of New Westminster.

No. 11. Proclamation dated 25th June 1859, amending the preceding Proclamation.

No. 12. Proclamation dated 10th August 1859, amending the law relating to the licences for selling spirits, &amp;c., and for other purposes.

No. 13. Proclamation dated 31st August 1859, entitled the Gold-fields Act.

On the subject of the Proclamation for the naturalization of aliens I shall address you in a separate Despatch. The remaining Proclamations have been submitted for the sanction of the Queen, and they have been laid before Parliament in compliance with the provisions of the Act 21 & 22 Vict. Cap. XCIX.

I transmit herewith extract of a report by the Law Advisers of this Department, respecting the form of these Proclamations, and I shall be glad if you will cause the suggestions therein contained to be followed in the preparation of future enactments.

I have, &amp;c.

Governor Douglas, C.B.  
 &c. &c.

(Signed) NEWCASTLE.

## No. 24.

No. 24.

COPY of DESPATCH from the DUKE of NEWCASTLE to GOVERNOR DOUGLAS, C.B.

(No. 18.)

SIR, Downing Street, April 16, 1860.

I HAVE had under my consideration the Proclamation issued by you for British Columbia, on the 15th of May last, for the naturalization of aliens, of which a copy was transmitted to me with your Despatch No. 218,\* of the 13th of September. \* Page 51.

This Proclamation (which you appear to have framed after the model of the law of Canada), provides that every alien who has resided in the Colony for three years may demand naturalization, on producing a declaration of his residence and character from some British subject, on making himself a declaration of residence, and on taking the oath of allegiance. The latter declaration must be made, and oath taken before a Justice of the Peace, who is to declare that he knows no reason why the applicant should not be naturalized. These conditions being fulfilled, the Court of British Columbia is to record the proceedings, and the alien is to be deemed a British subject for all purposes whatever, "while within the Colony of British Columbia." The naturalization may be annulled, if any party to either of the above declarations is convicted of perjury therein. But the Court is not entitled, as a matter of course, to examine into the truth of the documents which it records.

The certificate from a British subject is thus merely nugatory, since in every community individuals will be found who will sign it without any knowledge of its truth.

Under this law, it would apparently be in the power of a fugitive American felon, by an easy fraud, to obtain all the rights of a British subject, and to qualify himself, so far as nationality is concerned, for any office in British Columbia, or a place in the Legislature as soon as such a body shall exist.

I am desirous that every facility should be given for acquiring the character of a British subject, but a certain amount of *bonâ fide* residence and respectability ought to be required as a condition of naturalization. It appears to me desirable, if it be practicable, that the Court of British Columbia, or some special officer designated for the purpose, should be empowered to require proof, satisfactory to such Court or officer, of the required residence, and of the respectable character of the applicant for naturalization, and that, as

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a guide to the decision on this point, persons having been convicted of treason, felony, rape, forgery, or any other infamous crime, should be disqualified from naturalization.

I am willing, however, to leave this question to your discretion and local knowledge, and I do not propose to interfere with the operation of the Act in its present form. I have accordingly submitted the Proclamation for the sanction of Her Majesty, and it has been laid before Parliament with the other Proclamations issued by you.

As a matter of language, the 4th clause should give the alien the rights of a British subject "within," not *while* "within," the said Colony of British Columbia. The effect of introducing the word "while" would be (if the provision were valid), (1), that the naturalized persons "while" within British Columbia would have the rights of a British subject elsewhere, (a privilege which the Colonial Legislature cannot confer; and (2), that while absent from the Colony his rights of holding property within it would be dormant (which is not intended). The word "while" therefore should be omitted.

Governor Douglas, C.B.  
&c. &c.

I have, &c.  
(Signed) NEWCASTLE.



EMIGRATION (NORTH AMERICAN COLONIES).

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RETURN to an Address of the Honourable The House of Commons,  
dated 25 August 1860; *for*,

“COPIES or EXTRACTS of DESPATCHES relative to EMIGRATION to the  
NORTH AMERICA COLONIES (in continuation of Parliamentary Paper,  
No. 218 of Session 2, 1859).”

Colonial Office, }  
28 August 1860. }

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C. FORTESCUE.

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(*Mr. Chichester Fortescue.*)

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*Ordered, by The House of Commons, to be Printed,*  
*28 August 1860.*

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COPIES or EXTRACTS of DESPATCHES relative to EMIGRATION to the  
NORTH AMERICAN COLONIES (in continuation of Parliamentary Paper,  
No. 218 of Session 2, 1859).

CANADA.

## CANADA.

(No. 10.)

COPY of a DESPATCH from Governor General the Right Honourable Sir  
*Edmund W. Head*, Bart., to His Grace the Duke of Newcastle.

Government House, Quebec, 7 February 1860.

(Received, 28 February 1860.)

My Lord Duke,

I HAVE the honour to transmit herewith the Chief Emigrant Agent's Annual  
Report for 1859.

I have, &c.

(signed) *Edmund Head*.

Enclosure 1.

### EMIGRATION REPORT, 1859.

To His Excellency the Right Honourable Sir *Edmund W. Head*, Bart.,  
Governor General, &c. &c. &c.

Office of Her Majesty's Chief Agent for  
the Superintendence of Emigration to Canada,  
Quebec, 31 December 1859.

May it please your Excellency,

I HAVE the honour to submit to your Excellency, for the information of Her  
Majesty's Government, my Annual Report on the Immigration to the Province  
during the year 1859, accompanied by the usual Statistical Tables.

Table No. 1 furnishes a return of the season's emigration, showing the  
number embarked, the births and deaths on the passage and in quarantine,  
with the total number landed, distinguishing males from females and adults  
from children, with the number from each country; also the number of vessels,  
tonnage, and seamen employed, with the average length of passage. On a  
reference to this return it will be seen that the number embarked for this port  
during the season was as follows:

	CABIN.	STEERAGE.	
Male adults - - - - -	965	3,082	
Female „ - - - - -	515	2,072	
Children under 12 years - - - - -	204	1,593	
Infants - - - - -	36	314	
	1,720	7,061	
TOTAL - - - - -	-	-	8,781
Births on the passage - - - - -	-	-	12
			8,793
Deaths on the passage - - - - -	-	-	15
Making the Total Number Landed - - - - -	-	-	8,778

(Of



Of the whole number of vessels engaged in the conveyance of the emigration of the year, 85 were sailing ships and 35 steamers. The former class had an average passage of 44 days, and brought 4,471 persons. The steamers, with an average passage from Liverpool of 11 days, from Glasgow of 16 days, carried altogether 4,307 persons. Distinguishing the cabin from the steerage passengers, the following is the comparison :

	CABIN.	STEERAGE.
35 steam ships - - - - -	1,583	2,724
85 sailing vessels - - - - -	137	4,334
	1,720	7,058

The emigration has been very healthy. The mortality among the steerage emigrants, which has been confined altogether to the sailing vessels, was only 15. The deaths among those from the United Kingdom were but 2. Those among the Germans were 8, the Norwegians, 5, making 13; and of these 11 were infants. No deaths occurred at the quarantine station during the season, a circumstance which had not occurred since the establishment of the station in 1832, a period of 27 years.

The sanatory condition of the emigration of 1859, as compared with that of the arrivals in 1858, will appear on a comparison of the admissions into hospital at Grosse Isle :

In 1858, they were	-	-	-	-	-	227
„ 1859 „	-	-	-	-	-	92

which, in relation to the amount of emigration of the respective years, shows a proportionate decrease of 40 per cent.

The following is a comparative statement of the arrivals from Europe in 1858 and 1859 :

	1858.		1859.	
	CABIN.	STEERAGE.	CABIN.	STEERAGE.
England - - - - -	1,436	5,005	1,493	3,353
Ireland - - - - -	106	1,047	4	413
Scotland - - - - -	38	1,386	158	635
Germany - - - - -	-	922	8	963
Norway - - - - -	-	2,656	57	1,694
	1,580	11,016	1,720	7,058
TOTAL - - -	-	12,596	-	8,778

Showing a decrease on the emigration of 1859 of 3,818 on the whole, and on the steerage passengers of 3,958, equal to 35 per cent.

Distinguishing the origin of the immigrants of the past season, they will appear as follows :

English - - - - -	2,610
Irish - - - - -	1,248
Scotch - - - - -	1,787
Germans and Poles - - - - -	1,100
Norwegians - - - - -	1,751
Belgians - - - - -	5
Canadians - - - - -	277
	8,778

## CANADA.

Table No. 2 presents a return of the passengers from each country and port during the seasons of 1858 and 1859.

Those from England were brought out in 28 steamers and 37 sailing vessels, and of the whole number 4,522 came from the port of Liverpool, 170 from Plymouth, and the remaining 154 from 14 other ports. The decrease on the year was 1,595 passengers, equal to near 25 per cent.

From Ireland the emigration numbered but 417, a large proportion of which consisted in females and children. The whole were brought out in 12 ships. The largest number from any one port was from New Ross, being 194. The decrease, when compared with 1858, is 733 passengers, equal to 64 per cent.

From Scotland the number was 793, brought out in seven steamers and 12 sailing vessels. Of the total number, 612 sailed from the port of Glasgow. The decrease from this country is 631 souls, equal to 44 per cent.

The foreign emigration numbered 2,722 souls; 966 from Germany in seven, and 1,756 from Norway, in 16 ships. The Germans, when compared with the arrivals in 1858, show an increase of 41 souls; but the Norwegians show a decrease of 905 souls, equal to 34 per cent.

But 16 of the sailing vessels from the United Kingdom came under the regulations of the Passenger Act. These brought 1,329 passengers. Forty-five vessels, with 421 passengers, were exempt from its operations. The following Table shows a return of the numbers from the United Kingdom:—

	UNDER THE ACT.		EXEMPT.	
	Vessels.	Passengers.	Vessels.	Passengers.
England - - - - -	5	657	32	331
Ireland - - - - -	6	382	6	35
Scotland - - - - -	5	290	7	55
TOTAL - - - - -	16	1,329	45	421

Table No. 3 furnishes a return of the adult (steerage) male emigration, distinguishing their trades, callings, and origin. The number embarked was 3,081, who were classed as follows:—

	TOTAL.	BRITISH.	FOREIGN.
Farmers - - - - -	1,051	550	501
Labourers - - - - -	866	602	264
Mechanics - - - - -	388	328	60
Professional men - - - - -	13	11	2
Clerks, agents, and traders - - - - -	331	331	—
Servants - - - - -	40	39	1
Miscellaneous and unenumerated - - - - -	392	266	126
TOTAL - - - - -	3,081	2,127	954

The incomplete form in which many of the ships' lists are made out in regard to the classification of tradesmen and mechanics, will account for the appearance of so large a proportion under the head of Miscellaneous, &c.

Table No. 4 presents a return of the number of persons who have been aided in their emigration to this country by private individuals, charitable institutions, or who have emigrated under the sanction of the Poor Law Commissioners. The total number assisted was 142—38 males, 76 females, and 28 children and the amount paid among them on their arrival here was 108 £ sterling.

The



The number from England was 46 ; 25 from the Chatham Union, consisting of 8 men, 9 women, and 8 children ; and 21 youths, from 15 to 18 years of age, from the London ragged schools.

The youths were readily supplied with situations, some in this city, but the chief part in the country settlements, where their services are eagerly sought for, as they are generally stout active lads, willing and anxious to make themselves useful.

Those from the Chatham Union were not of so desirable a class, consisting of middle-aged men and widows with children. The latter find great difficulty in procuring situations, and the charge they are subject to for the support of their children absorbs three-fourths of the wages they are able to earn.

From Ireland the number was 95, viz. ; 8 males, 53 single females, and 14 widows, accompanied by 20 children. Of this party there were 13 widows with 18 children, sent out by the guardians of the Gorey Union. The remainder consisted of single females and lads from the Wexford, Mullingar, and Youghal Unions, all of whom readily found employment.

I had occasion, in my report to your Excellency of last year, to point out the hardships and suffering to which a party of widows with children, similarly situated to them of this year, and sent out by the same union, were exposed, from the difficulty which was experienced in procuring them any suitable employment. In consequence of the reception of a larger party this season, from the same union, I have felt called upon to make further and more direct representations to the guardians, pointing out the cruelty of transferring this class of helpless poor to a country in which no provision whatever exists for them ; and, subsequently receiving very discouraging reports concerning them and their prospects from the agents of this department where the party was distributed, I forwarded similar representations to the Emigration Commissioners in London, with the view of more effectually bringing the matter under the notice of the Poor Law Commissioners.

Table No. 5 presents a comparative statement of the number of emigrants landed at this port from the year 1829 to the present time, a period of 31 years, numbering in the aggregate 922,593 souls.

There was but one complaint of infringement of the Passenger Act in the course of the past season. This was by the passengers of the brig "William and Joseph," from Limerick. It did not however result in a prosecution, as the complainants refused to remain to prosecute. The case appeared to be one of disagreement between the master and his passengers, rather than a direct breach of any provisions of the Act. A statement of the complaint was forwarded to the emigration officer at Limerick, in order that it might be brought under the notice of the owners.

The amended Provincial law relating to emigrants came into operation on the 1st of January last, and will doubtless prove efficient in the protection of immigrants. The 6th clause, requiring the agents of railway and steam-boat companies to be licensed has been strictly enforced, and has been found to have a beneficial effect. Certificates were granted to seven applicants, and these persons only have been authorised to approach emigrants with offers of inland transport.

The total expenditure of the Emigration Department, including a portion of the expenditure of the quarantine establishment at Grosse Isle, during the season of 1859, amounted to \$ 27,914. 50.

					\$	c.
For the Quarantine Establishment	-	-	-	-	9,440	89
					\$	c.
Emigration	-	-	-	-	5,656	43
Salaries and Agency Expenses	-	12,817	18			
					18,473	61
					27,914	50

CANADA.

The several heads of expenditure on account of the Quarantine Establishment were as follows :—

							\$	c.
Pay of wintering party, 1858 and 1859	-	-	-	-	-	-	916	30
Pay of officers and staff during season	-	-	-	-	-	-	7,639	22
Hospital supplies	-	-	-	-	-	-	224	16
Milk	-	-	-	-	-	-	36	02
Straw	-	-	-	-	-	-	48	00
Washing	-	-	-	-	-	-	30	67
Cartage	-	-	-	-	-	-	184	00
Drugs, &c.	-	-	-	-	-	-	58	65
Boards	-	-	-	-	-	-	33	50
Sundries	-	-	-	-	-	-	172	01
Printing, stationery, &c.	-	-	-	-	-	-	150	61

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\$ 9,493 14

*Cr.*

By Cash received from shipmasters for carriage of  
their passengers to Quebec - - - - 52 25

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\$ 9,440 89

This shows a decrease when compared with the expenditure of 1858, of \$463. 09, which has chiefly been effected in the items of hospital supplies and cartage. This abstract, however, does not include the charge for steamboat service for the use of the station, which was defrayed by the Board of Works, and cost for the season \$1,677. 50. The greatly reduced immigration has permitted a considerable saving under this head, when compared with the expenditure in 1858, in which year a steamer was engaged for the exclusive use of the station at a cost of 5,000 dollars. During the present season the contract was made for a certain sum per trip, and but one regular trip per week was engaged. The whole amount saved in the cost of the quarantine establishment at Grosse Isle, when compared with that in 1858, was \$3,785. 59.

The expenditure incurred on account of the immigration at the several agencies throughout the Province for the year ending 31 December has been as follows :

							\$	c.	\$	c.
Quebec - - -	Transport	-	-	-	-	-	2,609	14	5,880	32
	Provisions	-	-	-	-	-	116	21		
	Agency charges	-	-	-	-	-	1,175	00		
	Salaries	-	-	-	-	-	1,979	97		
Montreal - - -	Transport	-	-	-	-	-	472	00	1,884	12
	Provisions	-	-	-	-	-	23	34		
	Agency charges	-	-	-	-	-	345	45		
	Salaries	-	-	-	-	-	1,043	33		
Ottawa - - -	Transport	-	-	-	-	-	328	14	2,139	19
	Provisions	-	-	-	-	-	31	98		
	Agency charges	-	-	-	-	-	279	07		
	Salaries	-	-	-	-	-	1,500	00		
Toronto and Kingston	Transport	-	-	-	-	-	660	50	5,179	29
	Provisions	-	-	-	-	-	138	25		
	Agency charges	-	-	-	-	-	738	54		
	Salaries	-	-	-	-	-	3,642	00		
Hamilton - - -	Transport	-	-	-	-	-	990	72	3,390	69
	Provisions	-	-	-	-	-	286	15		
	Agency charges	-	-	-	-	-	313	82		
	Salaries	-	-	-	-	-	1,800	00		
							\$		18,473	61

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• From



From this statement it will seem that the total direct relief extended to destitute immigrants throughout the Province has been—

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For transport - - - - -	\$ c. 5,060 50
For provisions - - - - -	595 93
	<hr/> \$ 5,656 43

The total expenditure, when compared with that of 1858, appears as follows :

	1858.	1859.
	\$ c.	\$ c.
Transport and provisions - - -	11,486 57	5,656 43
Agency charges - - - -	13,130 61	12,817 18
TOTAL - - - \$	24,617 18	18,473 61

The decrease in the expenditure incurred in the direct relief of immigrants during the past year was \$5,830. 14., equal to upwards of 50 per cent. The cost of agencies shows a decrease, when compared with that of last year, of \$313. 43.

The number of persons assisted at the Quebec agency was equal to 897 adults, at an average cost for transport of \$2. 90 each. They were forwarded to—

Places in Canada East - - -	451	897 adults.
Ottawa District - - - -	108	
Places in Canada West - - -	130	
United States - - - -	208	

Of the above there were—

English - - - - -	154	897 adults.
Irish - - - - -	340	
Scotch - - - - -	7	
Germans - - - - -	249	
Norwegians - - - - -	147	

At Montreal there were assisted 189 adults, at an average cost of \$2. 52. They were forwarded to—

Western Canada and Ottawa - -	185	189 adults.
United States - - - -	3	
Eastern Townships - - -	1	

At Ottawa there were relieved 202 souls, equal to 153 adults, at an average cost of \$2.15. They were chiefly forwarded to places on the Upper Ottawa.

At Toronto the number of persons who received assistance was 812, at an average cost of 98 cents each. They were chiefly forwarded into the interior, and were mostly persons proceeding to join their friends.

At Hamilton the number assisted was 949, at an average cost of \$1. 35 each ; 913 were forwarded to places in Western Canada, 21 to Montreal, and 15 to the

## CANADA.

the Suspension Bridge at Niagara. A large amount of this expenditure is stated by Mr. Dixon to have been incurred on account of the immigrants who reached the Province by the route of the United States, and who are generally in very destitute circumstances, owing to the unreasonable detention they are exposed to from the practices of designing persons on the route.

The emigrant duty realised in the course of the season was as follows :—

At Quebec, 8,438 at 5 s. each	-	-	-	\$ 8,438
„ Montreal, 7 ditto	-	-	-	7
Total Amount of Tax collected				\$ 8,445

I here submit a resumé from the reports of the sub-agents as to the results of the season's immigration to the several sections of the Province under their more immediate charge, viz., Mr. M'Kay, the acting agent at Toronto, Mr. Dixon at Hamilton, Mr. Clemow at Ottawa, and Mr. Daley at Montreal. The reports in full have been transmitted to the secretary of the Bureau of Agriculture.

Mr. M'Kay, the acting agent at Toronto, reports that 4,131 immigrants arrived at that agency during the season *viâ* Quebec, Rochester, and Oswego; 2,276 of whom proceeded to the Western States, and 1,855 remained in Canada. The condition of the immigrants generally was very good, and a great many of them had means to enable them to settle down comfortably and become valuable settlers, while others proceeded to join their friends. A number of families were in destitute circumstances, chiefly those who came out to friends, but more particularly those who reached the country by the route of the United States. The demand for labour has continued limited throughout the season, but the prospects and condition of the farmers were improving, and all who came out have found employment, although at reduced wages.

Mr. Dixon, the agent at Hamilton, reports the arrival during the year as 14,236; 1,696 of whom came *viâ* Quebec, and 12,540 *viâ* the United States and Suspension Bridge; 11,095 proceeded to the Western States, and 3,141 settled in Canada; 949 persons were assisted to enable them to reach their friends in different sections of the country, more than half of whom reached the Province *viâ* the United States, and were generally very destitute, owing to the detention and imposition they were exposed to on the route. With reference to employment Mr. Dixon states, that it is still very scarce; but he anticipates that matters will improve before spring, and that agriculturists will find remunerative employment; but for mechanics, and more especially persons seeking situations in mercantile life, he fears they will be doomed to disappointment and want.

Mr. Clemow, the agent at Ottawa, reports that 489 immigrants reached his agency, against 1,829 during the season of 1858. They arrived *viâ* Quebec, and a few by the route of the United States. They were remarkably healthy, and in appearance respectable, but generally of the labouring class; a number of whom came out to join their friends: 202 persons received assistance to proceed to their destinations, chiefly on the Upper Ottawa. Of the immigrants arrived 212 were foreigners, Germans and Poles. A number of Germans also had removed from Berlin, in Canada West, and settled on the Government lands in the townships of Alice and Wilberforce. They are doing well, and appear satisfied with their prospects; and will, from their industrious habits, prove a valuable addition to the population of that district. The demand for labour, owing to the limited immigration, has been steady, and every man able and willing to work was at once engaged. Some disappointment was felt by the farmers at not being able to secure the number of labourers they required, more particularly during the harvest; but 23 mechanics reached the agency during the season, who obtained employment with little difficulty. The district has been supplied with all the mechanical labour it requires by the influx of old residents from other parts of the country; and the prospects at present are not encouraging, unless to those who might possess sufficient means to establish themselves in the small towns and villages, which generally offer a good opening, and where they are more likely to succeed than by depending on the uncertain employment in large cities. To persons desirous of settling upon land, the Ottawa country



country offers every encouragement. The large extent of Crown lands, as also those held by private individuals, the greater portion of which are well suited for agricultural purposes, presents favourable opportunities for settlement; lands, partially improved or unimproved, being easily obtainable at prices and upon terms according to situation.

Mr. Daley, the agent at Montreal, reports that 274 indigent persons, equal to 189½ adults, were assisted at his agency, 185 of whom were forwarded to Western Canada and Ottawa; 3½ to the United States, and one to the eastern townships. He affords particular information as to the systematic imposition practised on immigrants who come to Canada by the route of New York, stating that some 20 families, to his knowledge, had been ticketed to that port, and thence sent to their destinations in Canada by very circuitous routes, *via* Suspension Bridge, Rochester, Oswego, and Cape Vincent. One family, in particular, whose destination was Rawdon, near Montreal, were ticketed at Liverpool for New York, being told that the port of Quebec was closed until the end of June; from New York they were sent round by Suspension Bridge (which they were told was within a few miles of their destination); their inland transport costing more than the voyage by sea. Mr. Daley further reports the great healthiness of the immigrants he saw at his agency, their respectable appearance, and the purpose of many with means to purchase lands in the western section, while others intended to apply for free grants on the Government lands. Those seeking employment obtained it with difficulty in some cases. Agricultural labourers and female servants were hired at fair wages, but the prospect generally for mechanics was far from encouraging.

The foreign immigrants who have arrived at this port during the past year number, as before stated, 2,856 souls; 1,756 Norwegians and 1,100 Germans. The former came to this country in Norwegian vessels direct. Of the latter, 901 sailed from Hamburg, 63 from Bremen, and 136 from Liverpool.

The Norwegians show a decrease of 900, when compared with the immigration of 1858. They were generally in good health. They proceeded to the Western States, with the exception of 15 families (49 persons), who have settled with their countrymen in the eastern townships, purchasing their lands from the British American Land Company in the township of Bury, where they appear so well pleased with their situation that two of them have purposed returning to their native land this winter in order to make known the advantages which Canada offers, and to induce others of their countrymen to join them. From the report received from Mr. Christopher Claster, Norwegian interpreter, it appears that the falling-off in the number this season was owing to the difficulty which the intending emigrants found in realising money for their property. From the information he has received he anticipates that we may look for an increase of their number in 1860.

There evidently exist among the Norwegians who emigrate great prejudices against this country, which he considers have been fostered and encouraged by interested parties and agents connected with the Western States. The Government and people of these States very justly attach a high value to the immigration received from Norway, which, without reference to the large amount of money-capital it introduces in the aggregate, is distinguished by its orderly and industrious character. It may therefore be anticipated that, from the success which has attended the establishment of the Norwegians in the eastern section of the Province, more extensive beneficial results will follow, by an annual increase of their number, and a more general occupation of our waste lands there.

In the development of the inexhaustible wealth which this country possesses in her fisheries along the sea coast and the Bay of Chaleur the hardy fishermen of Norway might find a large encouragement; and fishing establishments in connexion with settlement would greatly conduce to the general prosperity of the country.

From the report of the German interpreter, Mr. Sinn, there appears a small decrease in the immigration from Germany when compared with 1858. A considerable proportion of the emigration was of the poorer class, and some families presented the appearance of great destitution.

The number settled within the Province may be stated at from 300 to 400, a great number of whom went to the Ottawa country. This district has also received a considerable accession from the removal of old residents from the  
606. neighbourhood

## CANADA.

neighbourhood of Berlin, Canada West, who have purchased Government lands in the township of Alice. These settlements have made very satisfactory progress, and now afford indications of a rapid and beneficial enlargement, the success of which may in a great measure be attributed to the exertions of Mr. Sinn, who first directed his countrymen to that district.

Among the immigration from Germany, for several years past, we have annually received a large number of very destitute families, which, it would appear, are sent by this route by the shipping agents in Europe, to avoid the difficulty and discouragement which they experience in forwarding them by the United States. During the past season there arrived by the ship "Main," from Hamburg, a number of families of this class. (See Monthly Report, in the Appendix, page 18). They were Prussians, from Pomerania, consisting of 19 families, 93 souls (23 men, 21 women, and 49 children). From the information obtained from these people, it would appear that they left home with the intention of proceeding to Brazil, but finding, on their arrival at Hamburg, that their means were insufficient to convey them to that country, they were induced to take passage to Quebec. As no suitable employment offered for them within the Province, owing to the proportion of females and children being so greatly in excess, it appeared advisable, in order to provide for their immediate necessities, and to protect the Province from the burthen of their support, to forward the entire party to the German settlements in the Western States.

In my annual report to your Excellency in 1854, I felt called upon to offer some remarks with reference to the export of foreign paupers to this country, which appeared to call for some legislative enactment. This class of our emigration annually entails a direct charge on the emigrant fund, to cover which no special provision has yet been made by law. In the State of Massachusetts, the Emigration Commissioners are empowered to exact from the owners of the vessels conveying any passengers deemed on inquiry to be destitute, or likely to become so, special provisions against the case. The strict enforcement of these regulations deters the promoters of the emigration of this class of people from resorting to the United States ports, and leads them to ship for Quebec all such passengers as may involve them in extra expense on their arrival. It may be deemed expedient, in the event of further legislation, to adopt some course which will protect the Province from the indiscriminate introduction of foreign poor. I have reason to believe that the circumstances under which these people are sent out correspond with many of those of emigrants from the United Kingdom, who have been aided to emigrate through the means furnished by their parishes, &c. They had been supplied with aid, not because they were fitted to succeed as settlers in America, but because they were burthensome at home; and it was evident, on their arrival here, that the same disability which had rendered them valueless to the community in their own country would affect them here in an increased degree.

The following is offered as an approximative statement of the distribution of the steerage immigration arrived in the past year :

Arrived at Quebec	- - - - -	7,061
<i>Viâ</i> Portland, to 31st December	- - -	139
At Toronto, from the United States	- - -	500
At Hamilton, by route of the Suspension Bridge	- - -	12,540
		<hr/> 20,240
Distribution :		
Proceeded to Western States from Hamilton,		
as per Mr. Dixon's Report	- - - 11,095	
Proceeded to Western States, from Toronto,		
as per Mr. M'Kay	- - - 2,276	
Proceeded from Quebec to Boston and New		
York, as per Railway Returns	- - - 333	
Estimated number returned to Europe by Ocean		
Line Steamers	- - - 236	
		<hr/> 13,940
		<hr/> 6,300



Remaining in Western Canada	-	-	-	-	-	-	5,000	CANADA.
„ Ottawa District	-	-	-	-	-	-	500	
„ Eastern Canada	-	-	-	-	-	-	800	

The gradual decrease in the number of emigrants received annually direct from Ireland is very remarkable, when compared with the numbers received from other countries. The falling off was first observable in 1855, when the direct emigration fell from 16,161 in 1854 to 4,106 in the following year.

On referring to the direct emigration from that country which reached this port during the five years from 1855 to 1859, and comparing it with the previous five years, I find that the number was during the later period but 9,380, or an average of 1,876 passengers per annum, while during the five years ending with 1854 the number was 86,918, being an average of 17,385 per annum, nearly double the whole number received during the subsequent period.

Although a comparison, during the same periods, of the emigration from England and Scotland presents a considerable falling off, yet the reduction is by no means so large as in that from Ireland. The annexed table exhibits the numbers from the respective countries during these periods :

		1850 to 1854.	1855 to 1859.
England	- - - -	56,600	40,865
Scotland	- - - -	26,589	13,093
Ireland	- - - -	86,918	9,380

The severe destitution constantly prevailing in Ireland in former years stimulated emigration to an extent perhaps never before paralleled in any country. The Emigration Commissioners, in their 19th General Report, while referring to this circumstance; rightly remark : “ It is impossible to doubt that a result continued with such regularity through a succession of years implies an equally constant cause. That cause is to be found in the increased prosperity of the working classes in Ireland, and the consequent absence of any inducement to emigrate.” This improved condition of the labouring classes extends, although in a less degree, to the other portions of the United Kingdom; and, with the increasing demand and large bounty offered for men for the Queen’s service, correspondingly affects the labour market at home. The unfavourable reports which were received from this country, as well as from the United States, may be deemed a further explanation of the decrease in our emigration.

It is not to be desired that emigration from the United Kingdom should be again stimulated by the same causes that were in operation some years since. We may, however, hope that the improved condition of this country, in its abundant harvest of last year, will authorise our agriculturists to extend their operations very largely; and, by thus furnishing an increased field for labour, afford that encouragement to emigration which steady employment, at the rate of wages which a prosperous new country can afford, is certain to produce.

The great mass of our emigration, for several years past, consists of persons emigrating at the invitation of their friends, or of members of families coming out to join those who have preceded them, and in many cases have been enabled by their industry to acquire the means of paying the passage of remaining relatives. In fact, it is a rare thing to find a party on arrival seeking a settlement; they all have a destination in view, where there are friends before them whom they are anxious to join. There is just reason, however, to hope that, owing to the improved circumstances of the great bulk of the population in the mother country, and the encouragement to settlement now afforded by the Government, we may look for an accession of a different class from that which has hitherto chiefly characterised our immigration. I refer principally to the agricultural labourer or small farmer, who may possess sufficient capital to enable him at once to enter upon the occupation of land, with the view of acquiring a home for his family. It may, therefore, be desirable to consider

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what other measures can be adopted to encourage the introduction of so desirable a class.

The want of a responsible duly qualified agent for the Province in the United Kingdom has long been felt. While the United States have numerous agents, both in the United Kingdom and on the Continent, whose duty it is to encourage and invite emigration to their own ports, Canada remains unrepresented; and an emigrant, desirous of acquiring information, is left to the mercy of ship-agents or other parties, whose sole interest in the matter is to secure his passage across the Atlantic, without reference to his most advisable route, or to the question of his possessing any of the qualifications necessary to ensure his success. To this cause may be attributed much of the disappointment which annually occurs among our immigrant population, and the injurious influence which such of them as return to their native land exercise, by circulating reports unfavourable to the country, and attributing their disappointment to anything but the true cause, which may probably have been more within themselves than in any deficiency on the part of the country to receive and provide for them. I should look forward, therefore, with a considerable degree of satisfaction to the establishment of a Government agent at Liverpool, whose duty it should be to afford the fullest information to all persons seeking a home in this Province. The effect of the establishment of such an office would be to draw public attention, and encourage inquiry among the classes it is the interest of this country to procure. A record of the Government lands, with terms and conditions of occupation, as also the particulars of private properties for sale, with all such other information as might be of service to the emigrant, which I would have embodied and printed in a monthly sheet for general circulation, and for distribution on board all passenger vessels sailing from the United Kingdom, could not fail to prove of great service, and to exercise a most useful and beneficial influence upon the future of this country, by leading the emigrants, who now in such large numbers flock to the Western States, to inquire if Canada does not offer them superior advantages.

The Canadian ocean line of mail steamships commenced their weekly trips from Liverpool during the past season, and it is gratifying to find that they continue to maintain their high character for speed, safety, and comfort, fully establishing the fact of their equal efficiency with any other line of Atlantic steamers, which cannot fail to prove of exceeding value to the Province by bringing her into constant and immediate communication with the continent of Europe as well as with the mother country, and be the means of attracting a large share of the pleasure as well as business travel to this route.

The six steamships composing this line made 28 passages, and brought out 3,859 passengers, and returning, carried back 3,159; 1,254 cabin, and 1,905 steerage passengers. Their average passage out was 11 days and 15 hours, and homewards, 10 days and 10 hours. In addition to these vessels, we have the anchor line of screw steamships from Glasgow, making regular monthly voyages. The vessels composing this line, two in number, made seven passages during the season, and brought out 448 passengers—123 cabin and 325 steerage; and on their return trips, carried home 102 cabin and 352 steerage. Their average passage out was  $16\frac{1}{2}$  days, and home, 13 days.

It thus appears that these two lines brought out very nearly one-half of the whole immigration of the season, and if we take only those from the United Kingdom, they carried within 1,749 souls of the entire emigration to this port. On their return passages they carried home 3,613 persons, 2,257 of whom were classed as steerage passengers, including about 250 soldiers.

To the intending emigrants these steamers offer every inducement, whether their destination may be within the Province, or to any part of the United States, as, by the increased facilities which the Grand Trunk Railway, since the opening of the Victoria Bridge, is now enabled to offer, they may, by availing themselves of the trains despatched on the arrival of every steamer, proceed through to any part of the west without changing cars. These facilities, in addition to the regular line of first-class steamers, so long and favourably known on the St. Lawrence, from this port to all the chief places on the river and lakes, with the full assurance that emigrants may depend on meeting with every protection and advice from the Government agents, should secure to this route a large share of European travel. The many instances of imposition  
which



which have come to my knowledge, of emigrants who probably have been induced, from apparent economy, to take their passage to the United States in preference to Quebec, as referred to by the agents at Hamilton and Toronto, but more particularly by Mr. Daley of Montreal, fully prove that not only a considerable saving in money would be effected, but that a vast amount of trouble, inconvenience and suffering would be avoided by using the Canadian route throughout.

Taking into consideration all the circumstances of the immigration of the past season, I may be permitted to remark, that although the numbers have been small when compared with those of previous years, yet in most other respects it has been of a very satisfactory character, and that all of those who have remained in the country are likely to become permanent settlers, and prove a valuable addition to our population.

At the close of 1858, fears were entertained that, owing to the limited demand for labour that existed throughout the country, and more especially in Western Canada, much difficulty might be experienced in providing satisfactorily for any considerable number of immigrants depending upon employment that might arrive in 1859. As this limited demand has continued to exist in a greater or less degree throughout the season, it may on the whole be considered fortunate that this class of our immigration have not been more numerous. Fully four-fifths of those arrived during the past year were either persons in a position to take up land, or coming out to join friends already established in the country, consequently they were at once placed in a position of being provided for. Those seeking employment have generally obtained it in the country settlements, although at a reduced rate of wages. Provisions, however, have been moderate in price, and it may reasonably be hoped that the working classes generally have occupied as good a position as they did before the reduction in wages took place.

In the Appendix will be found a Table (No. 6), compiled from the Emigration Returns of the Port of New York, comprising the period between the years 1848 and 1859.

The emigration of 1859 has amounted to 74,598, being a decrease on that of 1858 of 3,991 souls. The Irish has been larger by 20 per cent., while the German shows a decrease, nearly in the same proportion. The English and Scotch show a decrease of above 25 per cent.

The whole number from the United Kingdom shows an increase of 2,228, while the foreigners present a decrease of 6,228 souls.

The increase is confined to the Irish, and is remarkable only when viewed in relation to the Irish emigration to Canada for the same year, which, in place of an increase of 25 per cent. on the year before, has decreased more than 33 per cent.

I cannot close this report without adverting to the large facilities now offered in this country for the acquisition by settlers of lands, wild or improved. Private proprietors and companies make public lists of their respective lands, with terms of sale, and the Government takes every care to publish from time to time schedules of the public lands open for purchase in every district of the Province. A regulation of the Crown Lands Department, some time since adopted, is directed to save the public lands from monopoly by speculators, and to keep them open for actual settlers only. By communicating directly with the Crown Lands Department of the Province, lands may be acquired in entire townships of 40,000 to 70,000 acres, at 2 s. sterling per acre, provided only actual settlement be engaged for, within a stipulated period. This regulation is more especially adapted to the views and requirements of communities of intending emigrants and of landed proprietors in the United Kingdom who may desire to settle any of their tenantry under circumstances calculated to improve their social position, and to such it is well deserving of consideration.

Submitting this Report to your Excellency's favourable consideration,

I have, &c.  
(signed) *A. C. Buchanan,*  
Chief Agent.

Enclosure 2.

APPENDIX to EMIGRATION REPORT, 1859.

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No. 1.

RETURN of the Number of Emigrants Embarked, with the Number of Births and Deaths during the Voyage and in Quarantine, the Total Number landed at *Quebec*, distinguishing Males from Females and Adults from Children, with the Number of Souls from each Country; also the Number of Vessels, Tonnage, and Seamen Employed, and the Average Length of Passage, during the Season of 1859.

W H E N C E.	Number of Vessels.	Average Days on Passage.	Tonnage.	Number of Seamen.	NUMBER EMBARKED.						BIRTHS.		TOTAL Souls on Board.	DEATHS ON THE PASSAGE.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					Cabin Pas- sengers.	Adults.		Children, 1 to 14 Years.		TOTAL Steerage.	Infants.	M.		F.	M.	F.	M.	F.	M.	F.	Infants.	Children, 1 to 14 Years.	TOTAL.	Total Steerage.	Cabin Passengers.	T O T A L Landed in the Colony.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Emigration Department, Quebec, }  
31 December 1859.

A. C. Buchanan,  
Chief Agent.



No. 2.

ABSTRACT STATEMENT of the Number of Emigrants landed in the Province, distinguishing the Countries and Ports whence they Sailed, during the Seasons of 1858 and 1859.

	1858.	1859.		1858.	1859.
ENGLAND :			SCOTLAND :		
Bristol - - -	173	7	Aberdeen - - -	245	117
Cardiff - - -	12	1	Dumfries - - -	7	—
Exeter - - -	9	—	Glasgow - - -	976	612
Fowey - - -	22	—	Greenock - - -	—	2
Hull - - -	142	56	Montrose - - -	196	62
Liverpool - - -	5,233	4,522	TOTAL - - -	1,424	793
London - - -	214	35			
Maryport - - -	4	5			
Newcastle - - -	5	—			
Newport - - -	14	7			
Penzance - - -	—	6	FOREIGN EMIGRATION :		
Plymouth - - -	540	170	GERMANY :		
Poole - - -	—	14	Bremen - - -	170	63
Portsmouth - - -	6	6	Hamburg - - -	755	901
Shields - - -	—	1	TOTAL - - -	925	964
Southampton - - -	—	2			
Torquay - - -	16	5			
Truro - - -	51	6			
Tynemouth - - -	—	3			
TOTAL - - -	6,441	4,846			
IRELAND :			NORWAY and SWEDEN :		
Belfast - - -	148	13	Bergen - - -	772	356
Cork - - -	42	3	Christiana - - -	358	448
Dublin - - -	57	—	Drammen - - -	431	168
Dungarvan - - -	8	—	Drontheim - - -	198	110
Galway - - -	280	—	Göthenburg - - -	267	41
Limerick - - -	107	110	Grimstadt - - -	17	—
Londonderry - - -	142	63	Kragerøe - - -	—	58
New Ross - - -	312	194	Postgründ - - -	223	404
Sligo - - -	3	—	Stavanger - - -	390	171
Tralee - - -	—	8	TOTAL - - -	2,656	1,756
Waterford - - -	44	—			
Wexford - - -	—	22			
Youghal - - -	7	4			
TOTAL - - -	1,150	417	BELGIUM :		
			Antwerp - - -	—	2

## RECAPITULATION.

England - - -	6,441	4,846
Ireland - - -	1,150	417
Scotland - - -	1,424	793
Germany - - -	925	964
Norway and Sweden - - -	2,656	1,756
Belgium - - -	—	2
TOTAL - - -	12,596	8,778

Emigration Department, Quebec, }  
31 December 1859.

A. C. Buchanan,  
Chief Agent.

## CANADA.

## No. 3.

## RETURN of the Trades and Callings of the Immigration of 1859.

	British.	Foreign.		British.	Foreign.
Bakers - - -	11	3	Moulders and foundry-men - - -	3	—
Bookbinders and printers - - -	12	—	Painters and glaziers -	9	—
Bricklayers and masons	14	3	Professional men -	11	2
Brickmakers - -	1	1	Saddlers and harness-makers - - -	—	2
Butchers - - -	8	—	Sailmakers - - -	1	—
Cabinet-makers - -	2	—	Sawyers - - -	5	—
Carpenters and joiners	104	9	Servants - - -	39	1
Clerks, agents, and traders - - -	331	—	Shoemakers - - -	18	9
Coopers - - -	3	2	Smiths - - -	37	12
Engineers - - -	11	—	Stonecutters - - -	1	2
Engravers - - -	1	—	Tailors - - -	55	6
Farmers, and agriculturists generally -	550	501	Tinsmiths, &c. - -	4	2
Hatters - - -	1	—	Watch and clockmakers	2	—
Labourers - - -	602	264	Wool and flax dressers	4	—
Millers and millwrights	4	2	Wheelwrights - -	3	4
Miners - - -	10	—	Weavers - - -	4	3
			Miscellaneous and unenumerated - -	266	126
			TOTAL - - -	2,127	954

Emigration Department, Quebec, }  
31 December 1859.

A. C. Buchanan,  
Chief Agent.

## No. 4.

## RETURN of the Number of Persons who received Assistance to Emigrate from the United Kingdom, with the Amount paid them during the Season of 1859.

DATE.	VESSEL.	WHENCE.	Number of Paupers.	CLASS.			Amount Paid.	By whom sent out.—Remarks.
				M.	F.	Ch.		
2 May	North Briton	Liverpool	3	—	1	2	£. s. d.	A soldier's widow. Provided with passage.
20 "	Dunbrody	New Ross	35	—	17	18	35 - -	Gorey Union. Received 20 s. each on landing.
27 "	Menapia	Wexford	13	—	13	—	- - -	Wexford Union. A free passage and outfit.
" "	John Bull	London	6	6	—	—	6 - -	Grotto—passage Ragged School, Marylebone.
11 June	North Briton	Liverpool	8	8	—	—	- - -	Mullingar Union. Provided with free passage only.
14 "	Culloden	Ditto	45 {	—	36	—	36 - -	Youghal Union. Received 20 s. each on landing.
" "	Ditto	Ditto		9	—	—	7 - -	Ragged School in London.
" "	Ocean Bride	Ditto	18	7	7	4	16 - -	Chatham Union. Adults 20 s.; children 10 s.
11 July	Czar	Ditto	6	6	—	—	3 - -	London Reformatory. 10 s. each.
20 Sept.	Agnes	London	7	1	2	4	5 - -	Ware Union. 5 l. paid by master of the ship.
7 Nov.	North Briton	Liverpool	1	1	—	—	- - -	Reformatory in London. Provided with a free passage.
		TOTAL	142	38	76	28	108 - -	
		From England	47	30	9	8	37 - -	
		" Ireland	95	8	67	20	71 - -	
		TOTAL	142	38	76	28	108 - -	

Emigration Department, Quebec, }  
31 December 1859.

A. C. Buchanan,  
Chief Agent.



No. 5.

COMPARATIVE STATEMENT of the Number of Emigrants arrived at the Port of *Quebec* since the Year 1829, inclusive.

	1829 to 1833.	1834 to 1838.	1839 to 1843.	1844 to 1848.	1849 to 1853.	1854.	1855.	1856.	1857.	1858.	1859.
England - - - - -	43,386	28,561	30,791	60,453	47,405	18,175	6,754	10,353	15,471	6,441	4,846
Ireland - - - - -	102,266	54,004	74,981	112,192	93,883	16,165	4,106	1,688	2,016	1,153	417
Scotland - - - - -	20,143	11,061	16,311	12,767	25,127	6,446	4,859	2,794	3,218	1,424	793
Continent of Europe - - -	15	485	-	9,728	16,867	11,537	4,864	7,343	11,368	3,578	2,722
Lower Provinces - - -	1,889	1,346	1,777	1,219	4,455	857	691	261	24	214	-
	167,699	96,357	123,860	196,359	187,737	53,183	21,274	22,439	32,097	12,810	8,778

GRAND TOTAL - - - 922,593.

Emigration Department, Quebec, }  
31 December 1859.

A. C. Buchanan,  
Chief Agent.

No. 6.

RETURN of the Number and Nativity of the Alien Passengers arrived at the Port of *New York* from the Year 1848 to 1859, inclusive.

COUNTRY.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	To 1st Nov. 1859.
England - - -	23,062	28,321	28,163	28,553	31,551	27,126	30,578	22,938	23,787	28,622	12,324	10,270
Ireland - - -	98,061	112,591	117,038	163,256	118,131	113,164	82,302	43,043	44,276	57,119	25,075	29,999
Scotland - - -	6,415	8,840	6,772	7,302	7,694	6,456	4,909	4,240	4,723	5,170	2,718	2,175
Wales - - -	1,054	1,782	1,520	2,189	2,531	1,182	1,288	1,118	1,376	887	566	467
TOTAL from United Kingdom - - }	128,592	151,534	153,493	201,300	159,907	147,928	119,077	71,339	74,162	91,798	40,683	42,911
Germany - - -	51,973	55,705	45,535	69,883	118,611	119,644	176,986	52,892	56,113	80,974	31,874	26,696
France - - -	2,734	2,683	3,462	6,064	8,868	7,470	7,986	4,174	2,984	3,069	1,786	1,439
Switzerland - - -	1,622	1,405	2,380	4,499	6,471	4,604	8,883	3,273	2,559	2,454	1,315	848
Norway - - -	1,207	3,300	3,150	2,112	1,889	377	81	203	438	62	3	36
Sweden - - -	165	1,007	1,110	872	2,008	1,630	1,859	304	918	619	237	305
Holland - - -	1,560	2,447	1,174	1,798	1,223	1,085	1,466	822	1,666	1,734	348	255
Other Countries - -	1,322	2,522	2,492	3,073	2,015	2,207	2,885	3,226	3,502	3,063	2,343	2,108
TOTAL - - -	189,175	220,603	212,796	289,601	300,902	284,945	310,223	136,233	142,342	183,773	78,589	74,508

Emigration Department, Quebec, }  
December 1859.

A. C. Buchanan,  
Chief Agent.

EXTRACTS from the Notes appended to the Periodical Reports of Arrivals of Passenger Ships at the Ports of Quebec and Montreal in the Season of 1859.

No. 1.—From the 28th of April to the 31st of May.

*Note.*—2,065 emigrants have arrived at this port from the opening of the navigation to the 31st of May. There arrived by ocean steamers, including the "United Kingdom," from Glasgow, 229 cabin and 436 steerage, which, compared with the remainder of the emigration, exhibits a satisfactory appreciation of the weekly line of steamers commenced this year between Europe and Canada.

The total decrease, as compared with the emigration of the last season, amounts to the number of 353. This decrease is less to be regretted, as at present there is a very general dearth of employment throughout the Province; nor has there been, fortunately, any extensive inquiry for employment on the part of the emigrants hitherto arrived, the majority having come out to join their friends, and a large number had secured through-tickets previous to their embarkation, and they proceeded at once to their destinations.

On board the "Dunbrody," from New Ross, there were 35 paupers sent out by the Gorey Union, consisting of 13 widows, accompanied by 18 children, only four of whom were of an age to enable them to contribute anything towards their support, and four single girls. They were paid 1*l.* sterling each on landing here. The single girls at once found employment; but, under the present circumstances of the Province, and the limited demand which exists for labour, these poor widows cannot but be exposed to severe distress. It was found necessary last year to point out the hardships and sufferings which a party similarly situated, sent out by the same Union, were exposed to, from the difficulty which was experienced in procuring them any suitable employment, as but few persons can be found who are disposed to engage the services of women encumbered with children; and a further representation has been made to the guardians, pointing out the injustice, not only to the people themselves, but to this country, of this mode of disposing of their useless poor.

Six lads, from 16 to 19 years of age, were sent out from the Grotto Passage Ragged Schools, Marylebone. They received 1*l.* each on landing here. Two were engaged in this city at 1*l.* per month wages, and the other four have been employed in the neighbourhood of Montreal.

The foreign emigration consisted of 554 Norwegians and 181 Germans. They have proceeded chiefly to the Western States, and 11 Norwegians to their friends in the Eastern townships.

Among the Germans, per the ship "Main," from Hamburg, there were 19 families, consisting of 23 men, 21 women, and 49 children, from Pomerania. These people had left their homes with the intention of proceeding to Brazil. On their arrival at Hamburg they found that their money was insufficient to pay their passage to that country, and they consequently took passage to this port, where they arrived on the 27th May. On inquiry, it was ascertained that but four families had any money left, amounting to \$61; the remainder were without the means of procuring even a day's food. As the proportion of females and children was so greatly in excess of the male adults, and as there was no demand for their labour in the Province, it appeared advisable to supply them with sufficient provisions for their journey, and forward the entire party to the German settlements in the Western States, as the cheapest and most effectual way of disposing of them. This has necessarily entailed a heavy charge on the very limited resources arising from the Emigrant Tax.

By the ship "Menapia" there were 10 females and three children, sent out by the Wexford Union. The master of the ship stated that they received a fixed sum each on leaving the union, to fit themselves out and provide their passage. They proceeded to Montreal by steamer the day of their arrival.

I herewith annex report of Mr. Sinn, the German interpreter of this office, with reference to the passengers per "Main."

Sir,

Quebec, 30 May 1859.

I HAVE the honour to report the arrival of the Hamburg ship "Main," Captain Haack, from Hamburg, on the 27th instant, having on board 179 souls.

My inquiries on board this vessel elicited the fact, that some days previous to her sailing, about 200 persons left their homes in Pomerania, Prussia, for Hamburg, in hopes of taking passage thence for the Brazils, having been incited to that course by favourable representations; but finding themselves on arrival at that port in no condition to proceed thither, it appears they were then persuaded, at least such of them as had funds remaining sufficient, to pay for the passage to embark for this port; and the result is, that of these passengers, four families, consisting of 22 persons, possess about \$61, and 15 families, 89 persons, have not among the whole wherewith to buy a loaf of bread.

Although the heads of these families are very robust and able-bodied people, they will hardly be able to earn enough to procure their families the necessary comforts at the present low



low state of labour throughout this Province; and I fear they will be exposed to suffer greatly, and more on account of their ignorance of the language.

During the last seven years I have observed that certain ship and passenger agents of Bremen and Hamburg have taken advantage of the facilities offered to introduce into this Province large numbers of poor and destitute families without an equivalent number of the more wealthy and abler classes, whom they direct to New York, &c.; and although the German population of Canada is more than 40,000, still there is no chance at present to introduce these parties per "Main" amongst them, with a certainty of obtaining employment, and therefore, although at greater expenses to this Province, I would beg to suggest to forward them into the wealthy German settlements on Lake Michigan, where this number will be absorbed, and cause no hardship to them, nor to the communities who receive them.

All of which is most respectfully submitted,

I have, &c.  
(signed) W. Sinn.

The expenditure incurred by this office on account of the above party was as follows:

Transport of 91 souls, equal to 63½ adults, to Lake Michigan	- \$ 401.52 ½
Provisions	- 26.25
Total	- \$ 427.77 ½

#### No. 2.—From the 31st of May to the 30th of June.

*Note.*—2,480 emigrants have arrived at this port during the month of June. They were all healthy, and generally respectable. They proceeded to join their friends in Upper Canada and the Western States. This characteristic of the present season's emigration leaves no difficulty, considering the circumstances of the country, in finding employment for those who have emigrated hither for that object.

#### No. 3.—From the 30th of June to the 31st of July.

*Note.*—The total number of passengers arrived during the period of this return is 1,310, making a decrease, as compared with last season, of 3,171. Most of the passengers have come out to join their friends in various parts of Canada and the States.

Several families of the Brødrene, after a special inspection by two of their number of the Norwegian settlement in the eastern townships, have chosen locations in that district, purchasing therefor a block of more than 1,000 acres of the British American Land Company. These parties, as they possess considerable means, will prove a valuable addition to that section of the Province; and, as they are from a part of Norway from which but few emigrants have as yet been received, it may be anticipated that on the report of these settlers reaching home others will be induced to follow.

But few of the emigrants of the past month have been seeking employment. The last reports from the Ottawa district state that agricultural labourers and domestic servants are much required, and that all who may proceed to that quarter will readily find employment.

#### No. 5.—From the 31st of August to the 30th of September.

*Note.*—The emigrants arrived at this port during the month of September number 1,173 souls, namely, 906 by steamers and 267 by sailing vessels. They were all healthy, notwithstanding the unusually long passages of the latter vessels, the average of which was upwards of 63 days.

They appear generally to have come out to friends: among those by the steam ships were a considerable number of Canadians returning from a visit to the old country. The Ocean Steamship Company's vessels bring out each trip a number of passengers for New York, Boston, and other parts of the Eastern States, who are chiefly mechanics seeking employment. Through an arrangement made by the Company with the Grand Trunk Railway, which came into operation in July last, these emigrants are enabled to reach their destinations by this route on as favourable terms as they could by proceeding direct from Liverpool, and with greater speed, comfort, and protection.

Employment in all descriptions of manual labour continues limited, very few inquiries for men having been received by this department during the past month; but the demand for female servants considerably exceeds the supply. The harvest throughout the country has been most bountiful; and it may be fully anticipated that the returning prosperity will enable our farmers to afford increased employment in the ensuing season.

CANADA.

No. 6.—From the 30th of September to the 7th of November.

*Note.*—The total number of emigrants arrived since the 30th of September is 794, which closes the present season. The decrease of embarkations, from the number of last year, is 4,053.

The character of the immigration, of which particulars are given in this Return, is very good. The passengers arrived chiefly by steamships, and were partly returned residents, but chiefly parties who came out to join their friends.

The annexed shows a comparative statement of the embarkations for this port during the season of navigation in 1858 and 1859 :

							1858.		1859.	
							Cabin.	Steerage.	Cabin.	Steerage.
England	-	-	-	-	-	-	1,436	5,012	1,493	3,354
Ireland	-	-	-	-	-	-	106	1,046	4	413
Scotland	-	-	-	-	-	-	38	1,397	158	636
Germany	-	-	-	-	-	-	-	923	8	962
Norway, &c.	-	-	-	-	-	-	-	2,662	57	1,694
Belgium	-	-	-	-	-	-	-	-	-	2
Lower Provinces	-	-	-	-	-	-	116	98	—	—
							1,696	11,138	1,720	7,061
Add, Cabin	-	-	-	-	-	-	-	1,696	-	1,720
TOTAL	-	-	-	-	-	-	-	12,834	-	8,781



EMIGRATION (NORTH AMERICAN  
COLONIES).

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COPIES or EXTRACTS of DESPATCHES  
relative to EMIGRATION to the NORTH  
AMERICAN COLONIES (in continuation of  
Parliamentary Paper, No. 218 of Session 2  
1859)

(*Mr. Chichester Fortescue.*)

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*Ordered, by The House of Commons, to be Printed,  
28 August 1860.*

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606.

*Under 3 oz.*

## MAILS (CANADA AND UNITED STATES).

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RETURN to an Address of the Honourable The House of Commons,  
dated 17 February 1860;—for,

“COPIES of any CORRESPONDENCE since the 1st day of June last between the Secretary of State for the Colonies and any Member of the Canadian Government, respecting the CONVEYANCE of MAILS between *Canada* and the United Kingdom, and the CONTRACT now existing for the CONVEYANCE of MAILS from the United Kingdom to the United States.”

Colonial Office, }  
28 February 1860. }

C. FORTESCUE.

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COPY of a LETTER from *John Rose*, Esq., to the Duke of Newcastle.

My Lord Duke,

No. 91, Victoria Street, Westminster,  
16 August 1859.

REFERRING to the interview with which I was favoured some days ago, and to the subject of the transatlantic packet arrangements then discussed, I have now the honour to state in writing the substance of the objections which Canada entertains to these arrangements, and to renew the expression of my earnest hope that a just consideration may yet be extended to colonial interests by the Imperial Government.

John Rose, Esq.,  
to the Duke of  
Newcastle.  
16 August 1859.

Your Grace is aware that an address of the Legislature of Canada to Her Majesty was adopted last Session, in which the position of the Colony, and the injurious operation of the two lines subsidised by Great Britain to foreign ports were fully pointed out. I would here, however, briefly again advert to them.

The avowed intention of the first contract entered into with Mr. Cunard, was to facilitate communication between the parent State and her North American Dependencies, and the mails for Canada were for some time conveyed by a branch steamer from Halifax to Quebec. The Cunard Company, however, finding it difficult and expensive to keep up this branch steam service, it was discontinued. The great bulk of the Canada mails have since been conveyed from England direct to New York and Boston, and thence across the United States territory to the province.

No objection was made in Canada at the time to this arrangement, both because the enterprise was a new and deserving one, and because the Colony did not then possess any railway communication of its own from the seaboard to the interior of the country; nor had the new interests arising from the completion of the public works of Canada then come into existence. During the continuance of the various Cunard contracts, the province felt that it could not ask in its own interest for any change which might involve the slightest breach of faith towards the contractors; but a confident expectation was indulged, that when the period arrived for considering the continuation of the service, no renewal of the agreement would take place without negotiations to which Canada might be a party, and that the new and important relations of a national character which had arisen in the meantime would be fully discussed.

That



That she was justified in indulging this expectation will, I think, be abundantly manifest by referring to the communications which have taken place between the two Governments, to some of which I will presently advert.

It is not merely with reference to the postal requirements and convenience of Canada, however, that this question is to be considered. It involves considerations of a higher and more extensive character, which affect as well the future prosperity of the province, as the extensive and various interests of British subjects existing there. To these general considerations I would first very briefly call the attention of your Grace.

The efforts of Canada have for many years been directed to develop the trade of the St. Lawrence, and attract the commerce of the Western States of America to Europe through her territory, by the construction of extensive and costly works of internal communication.

So important were these works considered, that in the year 1842 Her Majesty's Government called on Parliament to afford its assistance in aid of the undertakings, and a loan was accordingly raised on the Imperial credit for that purpose. I cannot better point out to your Grace the importance of these works than by quoting the words of Lord Derby, then Principal Secretary of State for the Colonies, in a Despatch addressed to the Governor General of Canada, on the 2d April 1842 :

"It remains to be considered what are the public works towards the accomplishment of which it would be most desirable that the credit of this country should be applied ; and I apprehend that there can be no doubt as to the principle to be applied in selecting such as partake least of a local, and most of a general character, as tend most to the extension of the great lines of communication, and the promotion of trade and intercourse, rather than such as tend more to the immediate local advantage of particular districts. These last are objects, perhaps, for aid from the Provincial Treasury, but primarily to be promoted by local exertion. The former are objects of colonial, and I may even add of national interest and importance.

"Foremost among them stands the improvement of the navigation of St. Lawrence : this mighty stream, with its chain of lakes and its tributary rivers, forms the great natural highway of Canada, and not only of Canada, but also of a great portion of the United States, and of very extensive tracts of unoccupied fertile country, belonging both to ourselves and our neighbours, which will form flourishing states and provinces in the time of our children and grandchildren.

"To throw this great highway completely open, by means of substantial and permanent public works, would be an undertaking worthy of British enterprise, and one which, although chiefly and primarily essential to the advancement of Canada, would probably, both in a commercial and political point of view, not be without its advantage to the mother country.

"I do not at all question the propriety of a public expenditure for objects of this description ; and in authorising you to state to the Provincial Parliament that Her Majesty's Government will be prepared to sanction a loan of 1,500,000 £. for the improvement of the public communications in Canada, whether by land or water, you will understand that the Legislature will exercise a discretion as to the works to be undertaken, so that the improvement of the St. Lawrence and the lakes be the first object, and that the total amount to be raised on British credit do not exceed the stipulated sum of 1,500,000 £."

It may not be improper to add, that the same course of policy had been approved of and adopted by Lord John Russell, who preceded Lord Derby as Colonial Secretary, and that he addressed Despatches of similar import to Lord Sydenham in January and May 1841.

Since that period Canada has steadily pursued the policy of extending her works of internal improvement to the full measure of her resources. Canals, uniting the great lakes, and affording uninterrupted navigation, even for sea-going vessels, to the foot of Lake Superior, have been constructed. Numerous light-houses, extending from the western frontier of the province to the coast of Labrador, on the Atlantic, a distance of nearly 1,600 miles, have also been erected, and are maintained at a very heavy annual charge by the Colony, without the exaction of any dues on shipping for their support. There is likewise maintained, by the payment of a large provincial subsidy, a line of powerful iron tug steamers, in the Gulf of St. Lawrence, which are available, at almost nominal rates, for the towage of vessels trading to Canadian ports. It may fairly be asserted that  
the

the province possesses the most extensive and complete system of inland water communication in the world.

In these enterprises nearly the whole direct public debt of Canada, amounting to about 7,000,000 *l.*, has been expended.

There have also been constructed lines of railway, extending from the Atlantic sea-board as far west as Sarnia, on Lake Huron, by means of which, on the completion of the Victoria Bridge in November of the present year, an unbroken communication by the Grand Trunk Railway alone, of nearly 1,100 miles to the interior of the country, exist. Other lines, extending to all important sections of the province, have likewise been built, and these Canadian roads, at their westerly extremities, connect with the United States lines leading north as far as Minnesota on the one hand, and south to New Orleans on the other. Provincial aid has been largely extended towards their construction, and many millions of British capital are invested in them.

The magnitude and importance of the trade of the regions lying to the west of Canada, which seek an outlet to Europe for their products, are well known to your Grace, and will be admitted fully to have warranted this large outlay to secure it.

It has been conclusively shown that these Canadian channels of communication afford the nearest and most direct route from Europe to the Western States of America; and it was confidently anticipated that, on completion of her canals and railways, the province would obtain a share of this commerce, which might alike render her own provincial works productive, and the private enterprises adverted to remunerative to the projectors.

In endeavouring to attract this western trade, she had to incur not only the competition of the American cities of Boston and New York, and of the powerful interests connected with the railways leading to them, but also the direct rivalry of the State of New York itself, by which the Erie Canal, from the lake of that name to the navigable waters of the Hudson River, had been constructed as a Government undertaking.

The large subsidy paid by the British Government to the Cunard steam ships has, it is well known, operated as a direct bounty to the ports of New York and Boston, and, as was shown by evidence laid before the Canadian Legislature, the effect was greatly to draw the trade into the American channels leading to those cities, thus defeating the object which Canada sought to accomplish in the construction of her public works.

So painfully adverse to the interests of the Colony was the course of trade becoming, that Canada felt herself compelled to undertake a direct mail steam ship service with Liverpool from the St. Lawrence fortnightly in summer, and monthly in winter, to Portland, in the State of Maine, the Atlantic terminus of the Grand Trunk Railway.

The establishment of this even occasional communication so abundantly showed the advantages of the St. Lawrence route, and the provincial objects to be attained were so important, that the Government increased the service to a weekly line, by granting a subsidy of 55,000 *l.* currency, or about 45,000 *l.* sterling a year, and this line has been in successful operation since April last. It is composed of eight first-class screw steamers, of the burden of from 1,786 to 2,200 tons, and from 350 to 450 nominal horse-power. These ships have been built expressly for the service, at a cost of nearly 650,000 *l.* sterling, including the necessary tenders, and their voyages for regularity and speed can compare most favourably with those of any other company. The average length of their voyages has, I am informed by the contractor, been 10 days and 23 hours eastward, and 11 days and 17 hours westward; while that of the Cunard ships was, westward to Boston, 12 days and 21 hours, and to New York 12 days and 15 hours, and eastward from Boston 11 days and four hours, and from New York 10 days and 21 hours. During the present year, since the new ships have been placed on the line, the contrast is presumed to be still more in favour of the Canadian ships; one of them, the "Hungarian," having performed three consecutive voyages across the Atlantic in 27 days and 23 hours. The eminent success of this line has clearly demonstrated the superior advantages which the route offers, as well for emigration and commerce as for the transmission of mail matter to all parts of America.

When the experiment was entered upon by Canada, these considerations were placed before Her Majesty's advisers, and I would take leave to direct the attention of your Grace to a Despatch, dated the 2d September 1856, from the Governor



General of Canada to the Colonial Secretary, wherein the claims of the Canadian line to Imperial consideration are thus stated :

“I may perhaps be allowed to add, that there is a point of view, in which a Canadian may look at the whole question somewhat different from that in which it has presented itself to the authorities at the General Post Office.

“A Canadian may ask, ‘Why are we in Canada obliged to pay a subsidy at all for a line of steamers running into the St. Lawrence to a British port by a route which we hold to be the most advantageous route? The merits of the route itself might make our subsidy unnecessary, were it not that Her Majesty’s Government give a large bounty to a line running to foreign parts.’

“It may be admitted that Canada was benefited by the rapid transmission of the mails through the United States, but she was no party to the arrangement as one which could never be revoked. Canada now thinks that she can arrange for the conveyance of her own mails to and fro by way of Quebec in summer, and Portland in winter, more rapidly and advantageously than by Boston and New York. Why should Her Majesty’s Government discourage this new enterprise on the part of Her Majesty’s subjects, and, by a large subsidy, drive the business only to the United States ports?

“As a matter of course, we cannot ask for any breach of faith towards the present contractors. We cannot ask for a sudden termination to an arrangement of which we have had the full benefit; but we may surely ask that no renewal of that arrangement should be made without hearing what Canada has to say, when the opportunity occurs. We may hope that no course will be pursued adverse to the principles of free trade by the continuance of a large bounty to the Boston and New York lines.

“Leave the natural advantages of the St. Lawrence and Portland route to find their own level in the market, and in the meantime do not use all the influence of the British Post Office, and the assumed meaning of the existing arrangement respecting the 6 *d.* and 5 *d.* postage, so as to bear as hardly as possible on the first effort of this Colony to open the St. Lawrence to a regular line of British steamers.”

In reply to this Despatch, the then Colonial Secretary informed the Government of Canada, on the 3d December 1856, that, after communication with the Lords Commissioners of the Treasury, he was apprised by their Lordships that the existing arrangements with respect to the Canadian mail service would be continued until the expiration of Mr. Cunard’s contract, when they hoped that an arrangement more in conformity with what they would “regard as an equitable consideration for the finances of this country might be effected.”

After these communications, and knowing that the Imperial Government had been made aware of the continued existence and successful working of the Colonial line, Canada had a full reliance that no new arrangement with the Cunard line, or any other, would be made, and that no extension of existing contracts would be granted for the continued conveyance of the mails to Boston and New York without previous intimation to the Provincial Government, and then only after a full discussion of the relative advantages of the different routes, and of the important national considerations which were inseparable from the service.

It was therefore with surprise and regret that the Canadian Government became aware, through certain members of it who were in England on public business in November last, that it had pleased Her Majesty’s Government to renew the Cunard contract several years in anticipation of its expiring, without any intimation whatever to Canada, or giving her any opportunity of showing not only that the American and Canadian mail service could have been performed more expeditiously, and far more cheaply, by the St. Lawrence in summer, and by Portland in winter, but that a serious and lasting injury would be inflicted on the commerce and revenue of the Colony to the advantage of a foreign country. One of the objects which are stated to be aimed at in the extended arrangement is thus defined in a communication, dated the 19th June 1858, from the Secretary of the Admiralty to the Secretary of the Treasury :

“My Lords have to observe, that the present contracts by which the weekly communication with North America is maintained, are not terminable (excepting on default) till the 1st of January 1862, and that the ostensible object of the contractors in their application at this early date for an extension of the period

is

is to enable them, on the security so afforded, of the continuance of the Government subsidy to embark additional capital in the construction of still more powerful steam ships by which to outstrip all competitors, and maintain the superiority of the British line. This object appears to my Lords of national importance, and in the maintenance of this line considerations of greater moment than those of a postal nature must have weight when it is borne in mind that it is the connecting link between this country and her vast possessions across the Atlantic, and that in the event of the withdrawal of adequate support, the British line will be supplanted by foreign competitors, whose Government would probably again grant to them larger subsidies than those paid by this country."

It will not, I trust, be considered unreasonable if I express my profound regret that one of the most important of these possessions was precluded from the opportunity of showing in what way the objects aimed at could be best accomplished; and that the course actually taken is more calculated to destroy than maintain the true connecting link between England and that possession.

It is with equally painful emotions that Her Majesty's Canadian subjects have become aware that another line, known as the Lever Line, has been subsidised by the Imperial authorities, which is likewise intended to ply to United States ports. The establishment and continuance of such a line cannot fail to augment the injury to the commerce, and continue the unsatisfactory and irritating arrangements by means of which the postal communications with Canada are effected. Whatever Imperial considerations may have induced Her Majesty's Government to provide for a direct communication between Ireland and America, the Canadian Government cannot believe that it was intended thereby invidiously to foster the commerce of and emigration to the United States, to the distinct injury of Canadian interests, a result which must necessarily follow, if the cities of New York and Boston are made the terminal ports of this line on the American side.

It would certainly seem that Canada is placed in a much less favourable position than other English Colonies in regard even to the postal intercourse with Great Britain. Lines are maintained by large subsidies to the British possessions in Australia, in South America, in the West Indies, and in the Mediterranean; but with respect to Canada, her mails are conveyed first to a foreign country, and then through that foreign country at a heavy expense to her own territories.

Having thus adverted to the more general considerations which affect the question, I deem it my duty respectfully to point out to your Grace the consequences which, in my opinion, must follow the failure of the Canadian line. The fact that an enterprise so essentially tending to promote the general interests of an important Colony, and necessary to prevent its trade from being diverted into foreign channels, is crushed by the superior advantages conferred by England on lines whose interests are avowedly and exclusively with a foreign country, cannot but produce deep and general dissatisfaction; and in the absence of more cogent reasons than have yet been assigned for the renewal of the one, and the establishment of the other, give rise to an opinion that Colonial prosperity has been needlessly sacrificed to promote the interests of private companies. Apart from this, the considerations that many millions of English capital are invested in the Grand Trunk, the Great Western, the Northern Railways of Canada, and other private undertakings of a similar character, which undertakings it has been the effort of Canada to make productive, by attracting, through the means already adverted to, a direct trade between Europe and the West, and that the future prosperity of these enterprises will be most disastrously affected by the withdrawal of the Canadian weekly steam service, ought not to be without their weight. A return to the former service to New York and Boston, maintained by Imperial subsidy, will continue to make every inhabitant of Canada a direct contributor to the United States revenue. The amount of postage on the Canada mail matter by the Cunard Line is\* estimated at from 32,000*l.* to 39,000*l.* a year, of which the United States transit charge is about one-third, or from 11,000*l.* to 13,000*l.* a year. When it is considered that not only need no portion of this amount be paid, that it is a tax on the Canadian people, directly attributable to the continuance of the Imperial subsidy to United States lines, and moreover, that delay in the receipt of the mails to the Canadian community is entailed by the circuitous route, so fostered, through a foreign country, it will not be surprising if a state of things so anomalous, which the colony is struggling to the full measure of its resources to

\* I understand, though I cannot vouch for the exact figures.



remove, will, if continued, produce extreme irritation among its inhabitants, since every mail reminds them of a direct contribution to the American Exchequer. I need hardly advert to the obvious fact, that by the subsidies in question, a bonus is given to divert the most needed class of emigrants from proceeding to a British Colony, where their labour and capital are so much needed, and to encourage their settlement in the United States.

I have thus imperfectly, though I fear at somewhat too great length, endeavoured to point out to your Grace the peculiar and exceptional position of the province, whose interests I am charged to represent, its special claims to Imperial consideration, and the injury which the existing state of things will, if continued, inflict upon it. In what form and to what extent a proper measure of relief can be accorded, I leave to the consideration of the Government of which your Grace is a member. I would, however, venture to suggest one or other of the following plans, as being likely to attain the object which we seek to accomplish :

1. A direct subsidy to the colonial steamers. If it be true, as Mr. Cunard states his belief to be, that the amount of postage received by his ships is equal to the sum paid to him by the British Government, and that his line is kept up without cost to the country, surely the Canada postal communications are sufficiently important to justify an imperial subsidy, equal at least to that which the Colony contributes, even if the important commercial considerations which I have adverted to were to be disregarded.

2. A payment by Great Britain of a stipulated sum for the conveyance across the Atlantic and to the western limits of Canada of the mails to British Columbia, which the province has offered to perform in terms of the Minute of Council of the 13th June last, to which I have had the honour of again calling your Grace's attention in a separate communication.

3. If it is found that the arrangements with the Cunard line and the Galway line have gone so far as to be irretraceable, then that some such modification of the service be, if possible, required of one or other of the contractors as may, by means of its joint performance by the Canadian and English contractors, still continue to Canada a direct weekly communication. I am not prepared to say how far this latter suggestion is practicable in detail, but I doubt not the Canadian Government would be prepared to listen favourably to any reasonable proposal that would prevent the important objects which the province had in view in the establishment of the line from being defeated, which they would be, should the Canadian line be forced to succumb, as it soon will, under the competition maintained by the two Imperial subsidies.

I beg your Grace will accept as my apology for the length of this communication, that I feel in common with, I believe, all Her Majesty's subjects in Canada, a strong sense of the serious injury to which the interests of the Colony are exposed, and that I entertain a firm assurance that your Grace will not only give an impartial and careful consideration to the facts I have stated, but will be disposed to promote the reasonable claims of this important dependency of the Empire.

I have, &c.  
(signed) *John Rose.*

COPY of a LETTER from *C. Fortescue, Esq., M.P.*, to *John Rose, Esq.*

Sir,

Downing Street, 12 September 1859.

*C. Fortescue, Esq.,  
M.P., to John Rose,  
Esq.*

17 Sept. 1859.

I AM directed by the Duke of Newcastle to acquaint you, that he has had under his consideration your letter of the 16th of August, on the subject of the contracts recently entered into by Her Majesty's Government for the conveyance of mails across the Atlantic, and urging upon his Grace's attention the claims of the Canadian Line of Steamers to Imperial consideration.

I am desired to state that it is the Duke of Newcastle's earnest desire that in any arrangements for the conveyance of mails to British North America the interests of Canada should be fully considered, and his Grace regrets that in the late

late transactions the Canadian Government had not ample opportunity of stating their views. The Duke of Newcastle cannot, however, enter into the details of your letter, or give any opinion, much less any pledge, as to the future course which Her Majesty's Government may think right to adopt, as the subject of these contracts is under the consideration of a Committee of the House of Commons, and until its report is made, no decision can be formed. His Grace can therefore only assure you of his continued regard to the statements you have laid before him, and his resolve to watch over the interests of the Colony in this important matter.

(signed) *C. Fortescue.*

COPY of a LETTER from *John Rose, Esq.*, to the Duke of *Newcastle.*

91, Victoria Street, Westminster,  
17 August 1859.

My Lord Duke,

I HAVE the honour to bring under the notice of your Grace a recent communication from the Government of Canada, on the subject of a proposal to carry the mails from Great Britain through British America to the Pacific.

*John Rose, Esq.,  
to the Duke of  
Newcastle.  
17 August 1859.*

In a Report of the Committee of Council, under date the 13th June last, approved by his Excellency the Governor General, the Canadian Government expresses its willingness, on the conditions there stated, to place at the disposal of the British Government, or of any parties who may contract with that Government, the "Ocean" steamship and Inland Mail Service of Canada, from Liverpool to Red River, on payment of the sum of 30,000 *l.* per annum.

I need not here impress on your Grace, by argument, the considerations which induced the Government to make this offer. The completion of such an arrangement would be of great importance to the Colony, and the undertaking of it at the present moment would be especially so in connexion with the position in which the Canadian ocean steamers are placed.

I would respectfully solicit the early and favourable consideration of your Grace to this proposal, and I shall be happy to afford any information which may not be already supplied through the official communications of record in the department.

I have, &c.  
(signed) *John Rose.*

COPY of a LETTER from *C. Fortescue, Esq., M. P.*, to *John Rose, Esq.*

Sir,

Downing Street, 12 September 1859.

I AM directed by the Duke of Newcastle to acknowledge the receipt of your letter dated the 17th ultimo, on the subject of the conveyance of the mails from Great Britain to the Pacific, through British North America, and the proposal of the Government of Canada to place at the disposal of the British Government the "Ocean" steamship and Inland Mail Service of Canada, from Liverpool to Red River, on payment of the sum of 30,000 *l.* per annum.

*C. Fortescue, Esq.,  
M. P., to John Rose,  
Esq.  
12 Sept. 1859.*

I am desired to state that, after receiving a deputation from the North-West Transit Company, and carefully considering their proposals, as well as the communication received from the Government of Canada, the Duke of Newcastle could not feel justified in recommending so very large an assistance (80,000 *l.* in all) for a service so small as the conveyance of letters to British Columbia and Vancouver's Island; and that whilst his Grace recognises the great value, both to this country and to Canada, of a thorough communication across the British North American Continent, he hopes that the present delay may lead to a more complete scheme.

(signed) *C. Fortescue.*



MAILS (CANADA AND UNITED  
STATES).

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COPIES of CORRESPONDENCE, since 1st June 1859, between the Secretary of State for the Colonies and *John Rose*, Esq., Member of the Canadian Government, respecting the CONVEYANCE of MAILS between *Canada* and the United Kingdom, and the CONTRACT for the CONVEYANCE of MAILS from the United Kingdom to the United States.

(*Mr. Edward Pleydell Bowyer*).

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*Ordered, by The House of Commons, to be Printed,*  
*29 February 1860.*

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120.

*Under 1 oz.*

EXPLORATION—BRITISH NORTH AMERICA.

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FURTHER PAPERS

RELATIVE TO THE

EXPLORATION

BY THE EXPEDITION UNDER CAPTAIN PALLISER

OF THAT PORTION OF

BRITISH NORTH AMERICA

WHICH LIES BETWEEN

THE NORTHERN BRANCH OF THE RIVER SASKATCHEWAN AND  
THE FRONTIER OF THE UNITED STATES; AND  
BETWEEN THE RED RIVER AND THE ROCKY MOUNTAINS,  
AND THENCE TO THE PACIFIC OCEAN.

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Presented to both Houses of Parliament by Command of Her Majesty.  
1860.

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LONDON:  
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.  
FOR HER MAJESTY'S STATIONERY OFFICE.

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1860.

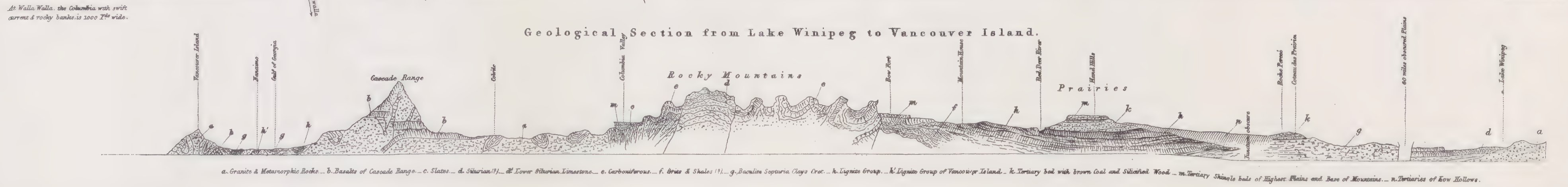
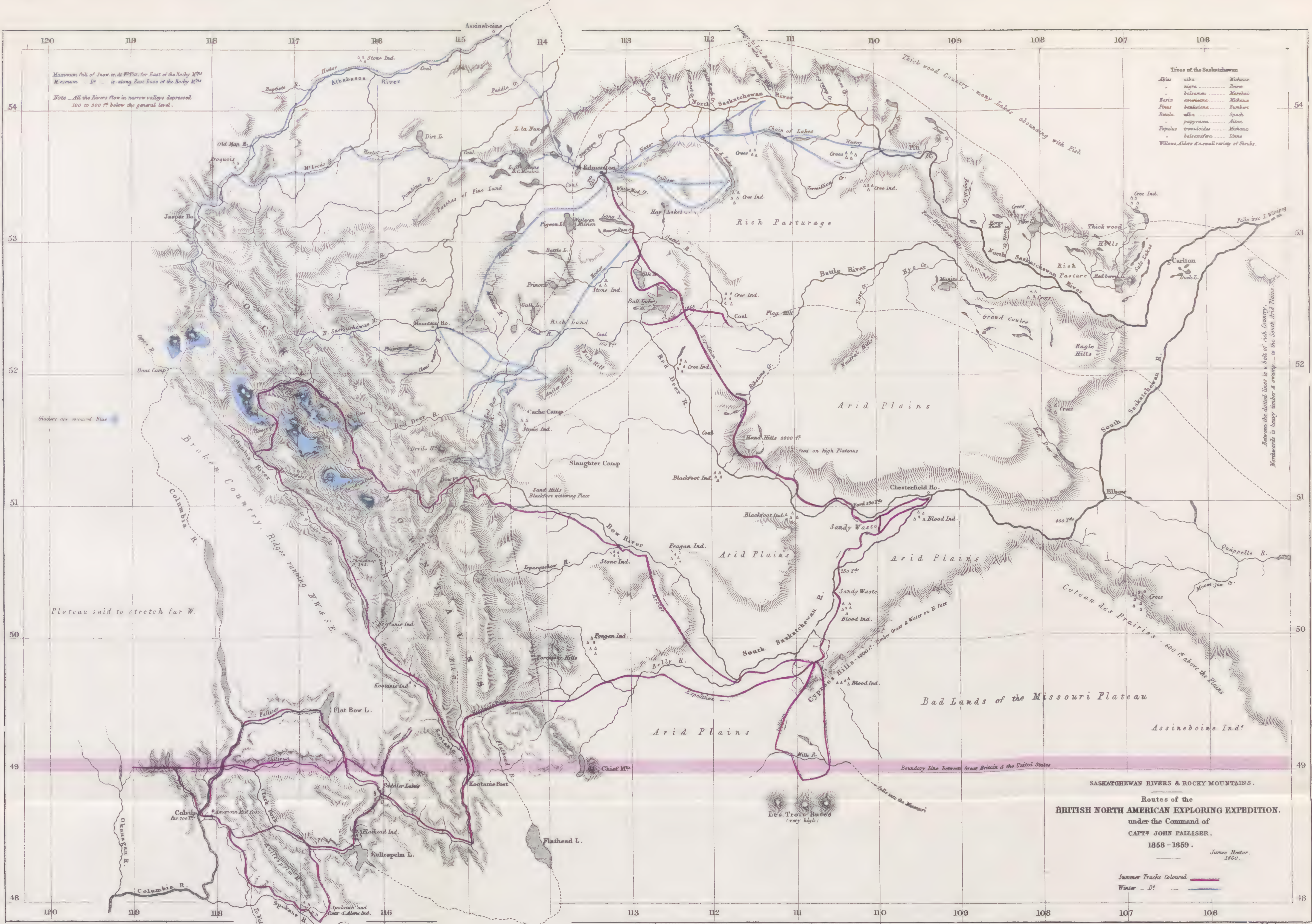


# SCHEDULE.

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\*\* The details of Captain Palliser's Explorations are in preparation, No. 1. to No. 4. being merely preliminary letters.







S K E T C H   M A P  
showing the Routes  
of  
CAPT<sup>N</sup> PALLISER & M<sup>R</sup> SULLIVAN  
during 1858.



REFERENCE.

<sup>1</sup> \* ..... Height of Land 1500 ft. above FT SHEPHERD.

<sup>2</sup> \* ..... 2300 ft. above FT SHEPHERD.

X ..... COLUMBIA is here a very wild Stream, flowing through a very contracted Channel, called as above, LITTLE DALLS.

N.B. .... As far up as Salmon R. on the PENDOREILLES, not even a bark canoe can ascend, the River is a succession of falls and wild rapids.

The KOOTANIE R. also, presents numerous bad rapids from its mouth right up to the FLATBOW LAKE. Only experienced Indians navigate it.

Brit. Statute Miles.



*M. Sullivan*

FURTHER PAPERS  
RELATIVE TO THE  
EXPLORATION OF BRITISH NORTH AMERICA.

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No. 1.

No. 1.

COPY of a LETTER from Captain PALLISER to the UNDER-SECRETARY  
OF STATE FOR THE COLONIES.

Fort Edmonton, Saskatchewan,  
May 20th, 1859.

(Received September 5, 1859.)

MY LORD,

I AM in receipt of your Letter to me dated July 3rd, 1858, and in compliance with your directions I transmit my opinions on the four points therein contained for the information of Secretary Sir E. B. Lytton.

First, as to whether the Red River Settlement possess qualifications which would adapt it for an English Colony.

The advantages that would accrue to Great Britain from the possession of this Colony would consist in enabling the British Government to support troops in case their presence were required in that portion of the empire; without that Colony all supplies for their maintenance would be necessarily cut off; but if that Colony were adopted by Her Majesty's Government, it might in a short period become very important head quarters, situated as it is near the boundary of the United States, and almost in the centre of the continent.

I shall now endeavour to state its capabilities as an agricultural settlement, from the information I have received, as well as from my own observations during three different visits, (viz., in July and in November of 1857 and in April 1858.)

The average winter commences in the middle of November; shortly after this the lakes and rivers set fast, and the ground acquires its permanent clothing of snow.

The winter lasts till about the second week in April, although during the month of March there are many warm genial days, but with hard frosts during the nights; but in addition to this period of five months there is a previous frost of two or three weeks, which precedes the taking of the rivers; this frost is severe enough to stop agricultural operations, so that the winter may be estimated at six months' duration. The extreme cold is in the month of February, when the thermometer falls to about 45° below zero. The winter is the most favourable time for the transport of heavy materials, such as those required for building purposes. Thaws rarely occur before the month of March, and at this time the existence of horses and horned cattle becomes precarious, owing to the thaws by day being succeeded by frosts at nights, causing a crust on the snow, in many cases too hard for the animals to remove in order to feed. But if horses and horned cattle are properly provided with a sufficiency of hay to meet that emergency, they will not only survive, but continue useful and serviceable during the whole of the winter and spring. Spring progresses with great rapidity; in a few days snow disappears, and the new grass has already commenced to grow up by the beginning of May. At the end of that month agricultural operations might be commenced. During the month of June, however, severe night frosts frequently occur, rendering the wheat crops very precarious, but the climate is well suited to the growth of barley, oats, potatoes, and garden vegetables.

The heat during summer is very great, ripening all fruits rapidly with some curious exceptions, among which are apples, which will not grow either there or in the north of the State of Minnesota. The harvest for hay, which is in great abundance, commences in the beginning of July, and that for the cereals about the 10th August. Great damage often occurs at this time to the crops from thunder storms and also from grasshoppers.



The soil is that of an ancient lake bottom, consisting of variously proportioned mixtures of clay, loam, and marl, with a remarkable deficiency of sand. It is overlaid by a great thickness of vegetable mould, varying from two to four or five feet in depth.

The settlement at present occupies an area of about 50 square miles in extent; its centre is at the forks of the Assiniboine and Red River in lat.  $49^{\circ} 52' N.$ , long.  $96^{\circ} 53' W.$ , and at an elevation of 800 feet above the level of the sea.

The chief wealth of the agriculturist would be derived from the rearing of cattle; large quantities of very nutritious grasses abound everywhere. Hemp, flax, and hops grow admirably.

Query 2nd. "What should be the dimensions and the boundary line of such Colony, and whether it would be advisable to include the Saskatchewan District in it so as to establish one great border line from the new Colony of British Columbia up to the Red River Settlement, under a sway and jurisdiction distinct from the Hudson's Bay Company's authority?"

In answer to this question I can only state, that I cannot see any object in limiting a new Colony to such narrow bounds as the mere district of Red River, and feel decidedly in favour of annexing not only the Saskatchewan, but also the Swan River District in one Colony, and so establish one great border line from the new Colony of British Columbia up to the Red River Settlement.

The occupation of the territory will only be a work of time; in proportion to the increase of population at Red River, settlers will advance into the Swan River and Saskatchewan Districts.

The country drained by the Saskatchewan is very diverse in character, but although not presenting the same luxuriance of vegetation as the valley of Red River, there are many localities, both there and in the Swan River Districts, where fine arable tracts are to be found. The northern part of the Saskatchewan is a partially wooded country, having at one time been covered by an extension of the great pine forests of the north, which have been removed by successive fires.

The soil consequently abounds in vegetable mould, and is far superior to the prairie lands proper to the south, where there is in general but a very scanty growth of herbage. The northern portion of the Saskatchewan District is well adapted for the rearing of cattle, also for the raising of sheep, if housed and fed during the winter and spring.

Its climate is somewhat similar to that of Red River, but decidedly milder in the southern and western portions; the western portion of Swan River District is much the same as the northern parts of the Saskatchewan; while the northern and eastern parts, which consist chiefly of lakes, are valuable for their abundant supply of excellent fish.

To the north of the north branch of the Saskatchewan there is also a line of lake country crowning the watershed between that River and English and Athabasca Rivers, from which abundant supplies of fish can be obtained.

If then the united territories of Red River, Swan River, and Saskatchewan, were adopted by Her Majesty's Government, I would suggest the following boundaries:—

The southern boundary of the Colony should be the 49th parallel of north latitude, commencing on east shore of the Lake of the Woods, to where it meets the crest of the Rocky Mountains in long.  $115^{\circ} W.$  The eastern boundary of the Colony should be defined by a line commencing at the 49th parallel on the western shore of the Lake of the Woods, and following the western margin of that Lake to the watercourse which unites the Lake of the Woods with Lake Winnipeg, from thence extending around the eastern shore of Lake Winnipeg, and following the water course of that lake to the 54th parallel of N. lat. in long.  $98^{\circ} W.$  The northern boundary of the Colony might run from the above point of intersection along the parallel of  $54^{\circ}$  of N. lat. to the point where it intersects the crest of the Rocky Mountains in  $118^{\circ}$  of W. long.

The whole would thus include a territory of 240,000 square miles.

In reference to the concluding portion of the second query in your Lordship's letter, viz., whether such colony should be under a sway and jurisdiction distinct from the Hudson Bay Company's authority, I have no hesitation in expressing my conviction that it is impossible for the Hudson's Bay Company to provide a government to meet the exigencies of a growing colony. Indians they can govern well through the medium of the trading shop; but the interests of a commercial community, which at all events must be adverse to their own, would not be likely to prosper under their rule. But as this is only an opinion perhaps it will not be out of place here to state a case. On my return (last May twelve months, from Red River to Fort Carlton) I visited Manitoba Portage, a flourishing settlement, which though situated not more than 60 miles from Red River Settlement, the general cause of complaint was that when they brought cases of theft,

trespass, or any other such cause of complaint, before the tribunal at Red River, they were at once dismissed on the plea that the district was beyond their jurisdiction, and my informants went on to say, that if matters were allowed to go on thus they would be compelled to institute a lynch law of their own.

In answer to the third query contained in your Lordship's letter, viz., "What means of access exist for British immigrants to reach this settlement," I think there are no means of access to be recommended save those *viâ* the United States.

The direct route from England *viâ* York Factory, and also that from Canada *viâ* Lake Superior, are too tedious, difficult, and expensive for the generality of settlers. The manner in which natural obstacles have isolated the country from all other British possessions in the East is a matter of considerable weight; indeed, it is *the* obstacle of the country, and one, I fear, almost beyond the remedies of art. The egress and ingress to the settlement from the east is obviously by the Red River Valley and through the States.

In answer to the fourth query contained in your Lordship's letter, viz., "Whether judging from the explorations you have already made, the country presents such facilities for the construction of a railway as would at some period, though possibly a remote one, encourage Her Majesty's Government in the belief that such an undertaking between the Atlantic and Pacific Oceans could ever be accomplished?" I have no hesitation in stating that no obstacles exist to the construction of a railway from Red River to the eastern base of the Rocky Mountains, and probably the best route would be found in the neighbourhood of the south branch of the Saskatchewan.

An amount of capital very small in proportion to the territory to be crossed would be sufficient to accomplish the undertaking so far, but the continuation of the railway across the Rocky Mountains would doubtless require a considerable outlay.

In my letter to Her Majesty's Government, dated 7th October 1858,\* I have referred to the two Passes examined by myself and my Secretary, Mr. Sullivan, both of which I found practicable for horses right across the main chain of the Rocky Mountains to the Columbia River, and that a small outlay would render the more northern one practicable for carts, and even waggons.

On the return of Dr. Hector from his branch expedition, I found he had also crossed the mountains as far as the valley of the Columbia River by the Vermillion Pass which leaves the valley of Bow River nearer to its source than the pass I had myself traversed. In that pass he had observed a peculiarity which distinguishes it from the others we had examined, viz., the absence of any abrupt step at the commencement of the descent to the West, both ascent and descent being gradual. This, combined with the low altitude of the greatest elevation passed over, led him to report very favourably upon the facilities of this pass for the clearing of a waggon road, and even that the project of a railroad by this route across the Rocky Mountains might be reasonably entertained.

In conclusion I wish to draw your Lordship's attention to the fact, that, in accordance with my instructions, we did not continue our explorations westward beyond the valley of the Columbia, I am therefore unable to form an opinion on any facilities that may exist, or obstacles which may oppose the further continuance of a railway from the valley of the Columbia River to the shores of the Pacific, I am in hopes, however, of soon receiving an answer to my letter to Her Majesty's Government, dated 7th October 1858, which no doubt will contain further instructions as to my explorations in that direction.

In the event of Her Majesty's Government deciding on the adoption of a North American Colony, comprising Red River and the Saskatchewan Districts, I would recommend that the Swan River should also be included in that Colony, and I beg to submit a letter from W. I. Christie, Esq., an officer of the Hudson's Bay Company, for some years in charge of that district previous to his recent promotion to the Saskatchewan.

This enclosed letter will explain what are considered by the Hudson's Bay Company to be the bounds of the Swan River district.

The Hudson's Bay Company Territories, are divided into districts for the convenience of the Indian trade. The valley of the Swan River does not embrace the Swan River District, nor does the Saskatchewan District contain the whole valley of the Saskatchewan River (a part of whose waters run through the Cumberland District), and therefore I have suggested, in answer to query 2, boundaries for the Colony under consideration, irrespectively of the districts or parts of districts which they comprise.

I have, &c.

(Signed) JOHN PALLISER.

The Under Secretary of State for Colonies.

Commanding Exploring Expedition.

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\* *Vide Papers* presented June 1859, p. 29.



Encl. in  
No. 1

Enclosure in No. 1.

Edmonton House, Saskatchewan District,  
17th May, 1859.

SIR,

AGREEABLY to your request, I beg leave to submit to you the following information regarding the extent and resources of the Swan River District of the Hudson's Bay territories.

The Swan River districts extend from the Manitobah post on the south, and of Manitobah lake, to within three days of Fort Carlton on the north branch of the Saskatchewan river. It embraces the country as far south as the boundary line from longitude 99° W. to 106° W. To the west it bounds with the Saskatchewan district, and on the north with the Cumberland district.

There are seven trading posts in the district, viz. :—

Fort Pelly.  
Egg Lake.  
Shell River.  
Manitobah.

Fort Ellice.  
Touchwood Hills.  
Q'Appelle Lakes.

Of these, the three latter are plain posts, the trade at them being mainly for provisions, the others lying within the thickwood country, are fur trading posts.

Fort Pelly is the head quarters of the district, the arable land round Fort Pelly is not of any great extent, owing to the prevalence of sandy soil and swampy land, covered with thick wood.

On the few patches which have been brought under cultivation in the neighbourhood of the Fort, barley, potatoes, and all vegetables are raised to perfection. Wheat has been tried, but invariably fails.

The pasture around Fort Pelly is excellent, and the cattle raised here have produced beef of very fine quality. The Hudson's Bay Company have a considerable stock of cattle at this post, and rear some fine horses, the breeds having been imported direct from England.

At all the thickwood posts in this district, there is abundance of timber for building and other purposes, consisting of spruce, pine, and poplar.

Fort Pelly and Egg Lake are entirely supplied with provisions from the plains, while Shell River and Manitobah posts are supported by fish.

The country around Fort Ellice and the Touchwood Hills is well adapted for cultivation, and the rearing of cattle; the soil is good, but there is a great scarcity of timber either for fuel or building purposes.

The Q'Appelle Lake post is far out in the plains, and the country around it is almost devoid of wood. There is an excellent fishery at the Q'Appelle lakes; white fish are speared here in great numbers in the autumn.

The thickwood population of the Swan River district is about 1000; but owing to the wandering habits of the prairie Indians it is difficult to form an estimate of their numbers.

The complement of officers, clerks, and men employed by the Hudson's Bay Company in this district, is as follows, viz. :—

One Commissioned officer, 6 Clerks, 7 Interpreters, and about 70 men, principally half-breeds.

The district is completely overrun by free traders from the Red River settlement, who come up in the fall and pass the winter along the frontier of the district, dependant entirely upon Buffalo for their support.

There is one settlement in this district at the south end of the Manitobah Lake, where there is a Missionary settlement, with a population of about 150 souls, who are entirely supported by fishing, raising a few potatoes only. Wheat however grows well there. There are besides this missionary settlement, two missionaries in the district, one stationed at Fort Pelly and the other at Q'Appelle Lakes, all belong to the Church Missionary Society.

Hoping the above information will be sufficient,

I have, &c.  
(Signed) WM. J. CHRISTIE.

John Palliser, Esq.,  
Commanding Exploring Expedition.

No. 2.

No. 2.

COPY of a LETTER from Captain PALLISER to HER MAJESTY'S  
SECRETARY OF STATE FOR THE COLONIES.

Fort Edmonton, Saskatchewan.

May 23, 1859.

(Received September 5, 1859.)

MY LORD,

I AVAIL myself of the opportunity afforded by the departure of the Hudson's Bay Company's boats for Norway House, to acquaint your Lordship of the return of Mons. Bourgeau (botanist of the expedition under my command) to England.

I have great pleasure in testifying to M. Bourgeau's zeal and activity in every way. In addition to his acquirements as a botanist, he possesses the most untiring energy, and in camp no fatigues deter him from immediate attention to the securing and preservation of his specimens.

He now leaves the expedition in order to return at the end of this his third season to England, and complete the botanical work (connected with the expedition) under the superintendence of Dr. Hooker at Kew.

I regret to say that in consequence of the total failure of provisions in this part of the district, I am compelled to start with the expedition immediately to the south in search of Buffalo, the delay of even one day in the present crisis might be of serious consequences, I therefore cannot wait for the arrival of further instructions in answer to my letter addressed to your Lordship, dated October 1858, but must hasten south, and meanwhile make the best arrangements in my power for receiving my letters on the plains, until which time I will take no decided step with respect to further explorations.

I regret to say that the war is just about to be renewed, but I shall endeavour to do all in my power to cement the peace again.

I have spent the greater part of the winter at the foot of the Rocky Mountains among the Blackfeet, and am personally acquainted with almost all the principal men, and also with many of the Piegan and Blood Indians. I have found them much easier to deal with in all questions of peace or war than their neighbours the Crees. Because the Blackfeet are richer in horses, war is the greater object to the Crees in order to steal the Blackfeet horses.

Doctor Hector also during the winter proceeded to the mountains, and the result of his exploration and observations will be reported in due course.

I am happy to state that almost all our horses have got through the winter fairly, with the exception of four deaths, and none have been stolen, and I have to thank Mr. Sullivan for his activity and zeal in looking after them during the protracted absence of Doctor Hector and myself while we were in the mountains.

I have, &c.

(Signed) JOHN PALLISER,  
Commanding Exploring Expedition.

Her Majesty's Principal  
Secretary of State for the Colonies.

No. 3.

No. 3.

COPY of a LETTER from Captain PALLISER to HER MAJESTY'S  
SECRETARY OF STATE FOR THE COLONIES.

Fort Colville, October 22, 1859.

(Received December 27, 1859.)

SIR,

I HAVE the honour to resume the account of the proceedings of the exploring expedition under my command, since our departure from Fort Edmonton, on the 27th of May 1859.

Owing to the great scarcity of provisions at Edmonton, and the total absence of buffalo from that part of the country, I was compelled to start with the expedition sooner than I would have wished, both on account of the condition of my horses, that had not yet sufficiently recovered from the severities of winter, also, because I had not yet received further instructions from the Colonial Office as to whether my expedition was to recross the Rocky Mountains. I therefore determined to endeavour to fall in with buffalo as speedily as possible, and there to await my instructions, and left Doctor Hector with directions to follow as soon as the mail from England had arrived.

Our party consisted of 16 men, including my secretary, Mr. Sullivan, and myself, two friends of mine, Captain Brisco, of the 11th Hussars, and Mr. Mitchell, who joined me in the commencement of last winter, and who were anxious to avail themselves of this opportunity of traversing the Blackfoot country. The accession of these two gentlemen and their men to my party enabled me to save some expence by hiring fewer men chargeable to the expedition, and I have had ever since cause to feel most thankful to them for the zeal and kindness, with which they have followed my directions, the patience and cheerfulness with which they endured many privations, and the steadiness and alacrity with which they undertook the guarding of the horses by night.

On 2nd of June we reached Buffalo Lake, where our provisions were exhausted; we however managed to support ourselves on ducks and beaver until the 11th, when we fell in with buffalo on the Oochischis Wachee or Hand Hills, in the Blackfoot country (Lat. 51° 32' N., Long. 111° 20' W.) Here I established my camp, and determined to await the arrival of Doctor Hector from Edmonton, with the letters from England. On the 14th of June we were visited by a war party of 45 Blackfeet, on their return from an unsuccessful invasion against the Crows. Having now plenty of meat, I received them hospitably, and dissuaded them from turning their arms against the Crees, from whom the Blackfeet had recently received great provocation, and persuaded them to



return to their camp. We were subsequently visited by several war parties, which, on the whole, were not very troublesome, but, unfortunately, succeeded in frightening one of my half-breed hunters and most of the men so much that I had no small amount of trouble to prevent my men from deserting and abandoning the expedition altogether, particularly when I informed them of my determination (in pursuance of my instructions of April 1857) to penetrate in a south-easterly direction to the forks of the Red Deer and Bow rivers, thence to the Cypreés mountains, and along the boundary line to the Rocky mountains. I was finally obliged to compromise the matter by consenting to send back to Edmonton and engage five more men from Lake St. Ann's.

June 19.—Doctor Hector arrived with instructions from the Colonial Office, and I determined (without sacrificing any of the objects of the expedition in the country eastward of the Rocky mountains) to pursue my route to the westward over the passes discovered last year, as far towards the sea as the season would permit.

On 20th of June I despatched Felix Monroe, one of my hunters, to Edmonton, with directions to engage five additional effective men; I took the precaution of sending provisions with him for the use of himself and these men on their return journey back to my camp, directing Felix to make a *câche* of the provisions when he came within two days of the Fort, in order to preserve them from the hungry population at Edmonton, for the use of the men on their return, but the fearful state to which the Edmonton population were driven was such that the men sent back to the *câche*, and gave up the provisions to the women and children, and reached my camp on the 4th of July, having had nothing to eat for three and a half days, an account which their fearfully haggard features fully confirmed.

The Blackfeet complain very bitterly of the Hudson Bay Company, and certainly not without reason, for the injustice of the tariff and the enormous difference between the price paid by a Cree and by a Blackfoot at the same Fort, for the same article. Also, they complain of the utter insufficiency of the goods that remain at the Fort during the summer months. "Therefore," said their chiefs to me, "let them see how well they can do without us now!" However, I persuaded them to go into Edmonton, and bring them provisions, and have since heard that these Indians fulfilled their promise to me.

Owing to my having been so much in the Blackfoot country, both in the summer of 1858 and the winter of 1858-9 all the chiefs and principal men know me, and frequently said to me "Desire us to do anything you please and we will do it." Doctor Hector also has acquired a great influence among them by removing some trifling complaints from the men, and a great success in his profession among the women and children. Neither is this friendly feeling confined to the Blackfeet alone, for both Piegans and Blood Indians, whenever they came in any numbers to visit me, always rode unarmed into my camp, which is the greatest compliment that these Indians can possibly pay.

We have now travelled through the whole of their territories, a portion of country hitherto considered so dangerous as to be almost inaccessible, and we have neither had a horse stolen or a gun pointed at us by any of these tribes. However, I do not wish to infer that a total stranger would be equally safe, nor that any one accompanied by a military force (unless that force were a very large one) would also be safe; I think in either case they would run very great risk of having all their horses stolen. These Indians tent in very large camps, from 400 to 600 tents together.

The Oochischis Wachee or Hand Hills in Lat.  $51^{\circ} 32' N.$ , Long.  $111^{\circ} 20' W.$ , are a plateau, elevated about 450 feet above the level of the surrounding prairies. The grass and land were very good, but the timber not of any value, being chiefly willow and poplar. With the exception of very few similar spots, the whole prairie over which we passed to our crossing place on Red Deer River (about 40 miles above the forks of Red Deer and Bow rivers) is a sandy country, the grass very scanty, and no wood.

On July 15th we crossed Red Deer River, and followed along its south bank until we arrived opposite the site of where the old Fort called Chesterfield House once stood; with the exception of the bed of Red Deer River the whole of that region is valueless, the grass being very scanty and timber very scarce.

Having now reached the 110th degree of longitude, I considered the whole of that region sufficiently explored, being now within 30 miles to the westward of that point of the Bow River which we had reached from the eastward, at the end of September 1857.

The general barrenness and absence of valuable timber along this whole region of country, has been the cause of great disappointment to us, as all the previous accounts we had heard of the south branch of the Saskatchewan or Bow River, had led us to

believe, that it would have been a most desirable place for settlers, but having now examined all that river, we find the whole region from the elbow in longitude  $107^{\circ} 37' W.$  up to the point where the meridian of  $112^{\circ} W.$  intersects the "line of the woods," by no means a desirable district for settlement.

There is throughout the whole of this region a great scarcity of rain; but in a few places, here and there, where the land rises above the plain to the height of three or four hundred feet, good grass and some timber, as rough bark, poplar, and willow appear.

We were now not far from the Blood Indian Camp, pitched to the southward of us. July 19th we were visited by a great number of the Indians, headed by their two chiefs, all rode unarmed into our camp; they spent the day with us, and insisted on our riding with them the following day to their camp, where they received Capt. Brisco, Dr. Hector, and myself most hospitably. Their tents are the largest I have ever seen, some of them 30 feet in diameter and of a proportionate height, well supplied with kettles, dishes and spoons, and frequently with American luxuries, such as coffee and sugar. They trade at Fort Benton on the Missouri.

Our Blackfeet guides deserted us here, from fear of these Indians, which I did not regret, as I found them expensive and useless.

On 22nd July, we crossed to the south bank of the lower Saskatchewan or Bow River, by wrapping up our baggage in leather tents, so as to form them into circular boats, and swimming our horses across. From thence we proceeded in a S.W. direction to the Cypreés Mountains in longitude  $111^{\circ} W.$  Here I had great difficulty in inducing my men to travel any further, they were literally terrified, but we forced them onwards. I told them they would have no pay nor any assistance back to their country from me unless the journey were performed, a threat they knew I would execute. I had already made an example of one of them when at the Hand Hills where I lost my old hunter, a Blackfoot half breed, who had faithfully followed me across the mountains and back to Edmonton last year.

He being an old man, I allowed him to return when all my persuasions and promises to induce him to advance had failed. I paid him up to the time he had remained with me, but the first man that proclaimed his intention to follow his example, I collared, kicked out of the camp, and refused his pay, as well as permission to return.

I am happy to say I was not obliged to adopt this course on any other occasion, but succeeded ever after in keeping my men together principally by ridicule and partly by persuasion.

The Cypreés Mountains in lat.  $49^{\circ} 38' N.$ , long.  $110^{\circ} W.$  are a range elevated 1,600 feet above the level of the plains, covered in fine timber, abounding in excellent grass, well watered, and fairly though not abundantly stocked with game. They run nearly east and west, and are connected with the Côteau des Prairies about 40 miles to S.W. of the elbow of the south branch of the Saskatchewan which we reached previous to our return to the northward, in order to winter at Carlton in October 1857.

We remained some days in the Cypreés Mountains to hunt and make provisions. Here our bread and tea, which we had hitherto only enjoyed twice a week, was at length exhausted, save one bag of flour, which I carefully kept for the doctor's use on the west side of the Rocky Mountains, where I knew all other resources would fail.

From this point I deemed it advisable that Dr. Hector should start on a branch expedition, in conformity to my instructions from the Colonial Office dated 8th February 1859. I accordingly fitted him out with 16 horses, four men, and an Indian hunter, with instructions to proceed and enter the mountains by the "pass" he explored last year, and endeavour to discover and explore a route practicable for horses to the westward, by the valleys of Frazer and Thompson's Rivers, and to avoid the valley of the Columbia River. Also, that if he failed, he was to join me at Colville, but if he succeeded he was to go on to Fort Langley.

On 3rd August, having converted the red deer and buffalo we had killed into pemican, we broke up camp. Dr. Hector started for the headwaters of the south branch of the Saskatchewan, and my two friends Captain Brisco and Mr. Mitchell proceeded southward to Fort Benton. Mr. Sullivan and I proceeded due west, nearly along the 49th parallel to the Chief's Mountain situated on the boundary line. It would be needless to occupy your time with a minute description of the country traversed by the 49th parallel of latitude, between longitudes  $109^{\circ} W.$  and  $113^{\circ} 50' W.$  It is a level, sandy, arid plain, the very insignificant tributaries to the south Saskatchewan were nearly dried up, appearing here and there in pools of water. The few swamps on which we were almost wholly dependent for water, with a few exceptions, were brackish and impregnated with sulphates, and the grass barely sufficed to feed the horses.



We crossed the mountains easily in  $2\frac{1}{2}$  days from the place where we abandoned the carts.

On the 18th of August we arrived at two Kootanie tents. These people possessed cows as well as oxen and horses, and had milk in abundance. We exchanged some tired horses with them, and traded a very lean young bullock, as our provisions were nearly exhausted.

My intention had been from this place to have turned to the northward, followed up the Kootanie River to the entrance of the new "pass" which I established last year, and thence to have endeavoured to cross the country, keeping north of the 49th parallel, as far as the Columbia River; but we learnt that there were no Indians then fishing on or near the source of the Columbia, nor to the northward of us on the Kootanie River, as they had gone to the Columbia Lakes; so not having sufficient provisions, nor seeing any probability of getting a supply, I determined on taking the Hudson's Bay Company's trail through the United States territory to Colvile, there to change horses, lay in a stock of provisions, flour and pork, and renew the explorations from thence.

We found the Hudson Bay Company's trail from the Kootanies to Fort Colvile far worse than we expected. It follows closely the river valley as far as the Lake of the Paddlers, in latitude  $48^{\circ} 42'$  north, longitude  $116^{\circ} 30'$  west, also, after leaving the river it runs altogether in American territory. We reached Paddler's Lake on 29th August, we found the Indians very badly off for provisions, and the fishing unusually bad.

In order to obtain a more extended knowledge of the country, I bought an Indian canoe at this place, and engaged two Indians to take me down the Kootanie River to the Flat Bow Lake, thence into the Columbia River to Fort Colvile, leaving the men and horses in charge of Mr. Sullivan, to proceed by land to Fort Colvile.

As the general course of the river now ran in a north-westerly direction, I was soon in British territory again, and arrived late in the evening of August 29th, at a camp of Flat Bow Indians.

These Indians, like the Paddlers, live by fishing, seldom hunt, nor indeed, is there much to shoot in their country, save at a short period in the fall of the year, when they are sometimes visited by wild fowl in abundance. I killed a few ducks and geese which, together with dry fish and fresh salmon, enabled my party to fare very well. On 4th September, I arrived, early in the morning, at Fort Shepherd, on the Columbia, a day's journey to the south of the Columbia Lakes.

This post of the Hudson's Bay Company on the right bank of the river, has been recently built in expectation of the time when the American Government will exclude them from trading at Colvile. At present, there are no goods, nor is any trade carried on there. The fort is about a mile north of the 49th parallel, and about half a mile north of the mouth of the Pendoreilles river, a tributary from the opposite side.

Here I first learned of the gold discoveries upon that river, the Columbia river and the Similkameen, where harvests as rich as those of Frazer and Thompson's rivers are confidently expected.

On Monday the 6th September, I reached Colvile. Mr. Sullivan and the land party had already arrived the day before. They had suffered severely from want of provisions; the berries which made into cakes, and which are the principal food of these Indians, had disagreed with them very much, and caused an attack of cramps in the stomach, which gave them great uneasiness. The whole party were most hospitably received by Mr. McDougall, a settler in Colvile valley; a little laudanum and brandy, with good wholesome food soon restored them all.

I found the United States mail, viâ California about to start, time did not permit me a fuller report of myself and my companions than my letter to the Colonial Office, bearing date 6th September, 1859, which was confined altogether to the monetary matters of the expedition.

On my arrival at Fort Colvile, a letter from Sir George Simpson, Governor of the Hudson Bay Company's territories, purporting to be a circular, and addressed to George Blenkinsop, Esq. (officer in charge of Fort Colvile) was read to me, by which I learnt with surprise, that all the engagements of the Hudson Bay Company, to furnish provisions and necessaries to the expedition, as well as their undertaking to honour my drafts on them for wages of men, &c. had been retracted.

With respect to the monetary matters of the expedition, I understand that the Hudson Bay Company are pressing at the Colonial Office for payment of an account amounting to 3012*l.*, but I cannot understand why the Hudson Bay Company have not submitted that account to my inspection, previous to their demand for payment. I have as yet, received only two priced accounts of the Hudson Bay Company, each of which I promptly paid by bills on the Paymaster General.

The inconvenience of delay at present experienced by the Hudson Bay Company in the payment of their accounts, is entirely owing to an arrangement made by Sir George Simpson, viz. :—at each of the forts, where supplies are furnished to the expedition, I am also furnished with blank or unpriced bills for my signature. These unpriced bills are then forwarded to Sir George Simpson, to be priced, and I claim on the part of Her Majesty's Government, the right of seeing those bills after they have been priced, and previous to their being paid; for this reason I have more than once reminded Her Majesty's Government, not to pay or allow to be paid, any sums of money for the purposes of the expedition under my command, save those drawn by myself on the Paymaster General.

In addition to this obvious reason, there is another to be urged, viz.—The Company have agreed to take back all the goods remaining over and above those that have been sent up the country for the use of the expedition, which will considerably reduce the sum due to them, and enable me (when the Cr. as well as Dr. side of the account is made out) to draw Bills on the Paymaster General for the balance.

I am happy to say that I have not met any inconvenience in the prosecution of my searches from this point (Fort Colville) in consequence of Sir George Simpson's prohibition to render us further assistance.

Mr. Blenkinsop, the officer in charge of the fort is himself a merchant, and has most kindly undertaken to furnish us in every way on his own private account, and accepts my bills on the Paymaster General, to defray the expences of the expedition.

It gives me great pleasure to be able to inform Her Majesty's Government, that my Secretary, Mr. Sullivan's, and my own endeavours to find a route practicable for horses from Edmonton westward across the Rocky Mountains, as far as the longitude of Fort Colville, and entirely within British territory, have been perfectly successful. In addition to this, I pursued my way for more than 50 miles to the westward, still north of the 49th parallel, until I arrived and terminated my explorations on the 11th of October, by reaching the camp of the United States Boundary Commissioners in longitude 119° 30' west.

I shall now endeavour to submit a detailed account of these explorations as briefly as possible, also Mr. Sullivan's description of that portion of them which was entrusted to him.

On 11th September I despatched Mr. Sullivan with orders to recommence on the 49th parallel at Fort Shepherd, there to "cross the Columbia River, and proceed from the mouth of the Pendoreilles River in an easterly direction to that point on the Kootanie River where our explorations terminated in the season of 1858, so completing the route across the country from the western base of the Rocky Mountains to the valley of the Columbia."

On 14th September I started myself for Fort Shepherd there to recommence on the 49th parallel, and endeavour to make my way to the westward until I fell on the trail of the Hudson's Bay Company, which bears to the northward, passing over the Cascade Range at Mansen's Mountain.

I secured the services of an old Blackfoot half bred hunter together with two of his own horses, which were in much better condition for the severe journey I was undertaking than mine, and was accompanied also by an Indian; we three started on horseback and carried our provisions on two pack horses.

On the 17th September we left Fort Shepherd, crossing a country of wooded hills, the first three ranges of which we crossed without much difficulty. I could not ascertain their exact height having no barometer, but they probably averaged between 800 and 1,100 feet. We then camped on the edge of a small lake of an insignificant size, and where we had a sufficiency of water. To reach this lake I had to cross the 49° N. about half a mile to the south. Distance made seven miles.

September 18th.—Started at 7 A.M. After breakfast returned a little to the northward and pursued a western course through the hills. Latitude at noon 49° 0' 15" N. After this we had to cut our way with axes through a country which, although not impassable to horses, presented great difficulties in the accomplishment of a road. We worked till 6 P.M., when we camped, having found water but no grass for the horses. Made three miles.

September 19th.—Breakfast early; started at 7 A.M.; the chopping and climbing very severe; day cloudy, could not take the latitude which from our course was to the northward of last night's camp. We continued alternately chopping through 20 or 30 yards, then jumping and driving up the horses, but before we arrived to where there was grass the Indian's horse failed and could proceed no farther; but soon after this we came to a small swamp, where by great exertion we brought and left him. In the afternoon one of the mares rolled down a precipice, pack and all; we climbed down and carried up her



load, and by taking a circuitous route brought her up again. Here the Indian declared he could not stand the work longer; took off his coat and shirt (payment made in advance for the trip), threw them back to me and departed. We allowed the horses to feed for a short time, then descended a deep ravine, where we found no grass for the horses. Here we camped having made four miles.

September 20th.—We breakfasted before sunrise, commenced to chop through the fallen timber, which was terrible; we had to ascend a mountain about 1,200 feet high, which was both steep, rocky, and densely piled with fallen timber; we reached the summit a little after five; came down an easy descent and along a valley, and camped about 8 P.M. Made five miles, finding both grass and water. Here our Indian returned to us; I received him kindly, restored his property, and he continued faithful to me throughout.

September 21st.—Rained hard all night. The horses suffered so much from want of food that I determined to remain there a day to recruit them. Lat.  $49^{\circ} 3' 10''$  N.

September 22nd.—Our labours not so severe; the mountains not so steep, and the fallen timber not so heavy as heretofore. Passed the horses over one very bad place, across a face of rock. This place at first appeared impassable for horses, but by availing ourselves of the slate shingle, which we levelled with our hands, building it up in some parts and rolling it over the precipice in others, we made a causeway and passed triumphantly. Camped on a little tributary to the Columbia, called Sheep River. Made seven miles.

September 23rd.—We had some difficulty in crossing Sheep River, after which very heavy timber to cut through. Found grass at noon. Camped; made one mile, but proceeded to chop for to-morrow's journey. Lat.  $49^{\circ} 2' 44''$  N.

September 24th.—Crossed the second fork of Sheep River; ascended about 1,100 feet of mountain, very grassy in many places; rode along the crest of the hill in a north-westerly direction, afterwards in a westerly. Made nine miles, and camped at half-past four p.m. Here there was grass but no water. Lat.  $49^{\circ} 5' 19''$  N.

September 25th.—A good deal of chopping and climbing in the latter part of the day, but evidently the worst of the journey was then over. Made about nine miles.

September 26th.—Started very early. It had rained all night; made more than three miles before breakfast. Our course continued to wind through a valley considerably to the north of west, and then to ascend a grassy hill to the height of about 900 feet. Proceeding along the crest of this hill for several miles, we at length came in sight of a lake called by the Indians Lake Nichelaam, to which they repair to fish late in the autumn from the south, and to which an Indian trail forks off from the Colville road. My companions were greatly rejoiced to find themselves once more within a mile or two of a known piece of country. My two mares here broke down for want of food, want of water, and the constant jumping over the fallen timber. One of them from the first start was not previously in sufficiently good condition for the trip, the other, unfortunately, owing to the constant jumping, slung her foal; we were obliged to abandon them. We had now but Pichena's two horses remaining, and we endeavoured to descend the mountain to the lake that evening. Not being able to accomplish this, we were obliged to camp in the cliffs without water, and consequently without anything to eat; having nothing but flour we could not cook it. Made 11 miles.

September 27th.—Since yesterday at 4 P.M. our course has been S.W., reached the southern extremity of the lake at half-past 8 A.M. Could not obtain the latitude at noon. It rained hard last night, snow fell in the mountains. This lake (Nichelaam) is about 7 or 8 miles long, and from 2 to  $3\frac{1}{4}$  wide, surrounded by mountains rising above its surface from 700 to 1,100 feet in height. After breakfast, struck on an Indian trail, leading south, which we rightly guessed would take us out on the road to Colville, distant about 50 miles. I determined to go to Colville, obtain more horses, and return again to the lake, from thence to renew my exploration to the westward, we camped at the Colville Road, which follows the Ne-hoi-al-pit-kwu or Colville River. About 8 miles S.E. from the lake where we found good grass we encamped, cleared up at night, took observation lat.  $48^{\circ} 57' 58''$  N., therefore southern extremity of lake is somewhat about 4 or 5 miles north of the line.

September 28th.—Started early, camped not far from Colville.

September 29th.—Crossed the Columbia River, reached Colville at 8 A.M.

On the 5th October I again started from Colville for Lake Nichelaam, accompanied by two half-breeds and an Indian.

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October 7th.—Reached the southern portion of Lake Nichelaam, where I had left off on September 27th ultimo. Took observation for latitude  $49^{\circ} 4' 30''$  N.

October 8th.—Started on foot to ascend the hills, on the hills on the west of the lake, carrying a couple of days provisions with us, and sending the horses round by the road to meet us, a little on the west side of north fork of the river.

My reasons in sending the horses round, were not because I deemed the section of country with which I was engaged impracticable for horses, but the fallen timber was very dense, and required more time to chop it through than I at that time thought I could spare. We had a great deal of scrambling through this timber, and passed along a valley in direction W.N.W., and 4 P.M. reached a height of land commanding a fine view of prairie country, affording a choice for continuing a road in several directions. We commenced our descent to the S.W., came out on the Ne-hoi-al-pit-kwu, a little below the N. fork at 9 A.M. The horses arrived with my sextant at 11 A.M., and at noon I determined the lat.  $49^{\circ} 2' 20''$  N.

October 11th.—Started early, pursuing our western course again along the Ne-hoi-al-pit-kwu, and shortly caught sight of a soldier in American uniform in pursuit of some wild ducks on the river; he informed me that the surveying party were camped a little further to S.W. Following his directions, I soon came in sight of their observatory, and rode into their camp. I was most hospitably received, pressed to remain and pass the day with them, an invitation which I gladly availed myself of.

I was greatly pleased with the instrument with which they carried on their observations for latitude. I am not aware that the instrument is known or used in England. It is an American invention called the zenith telescope, used in observing pairs of stars (one north the other south of the zenith) of nearly the same declination. A far greater number of results can be obtained in a given period than by means of the transit instrument, which I believe (but I speak under correction) is the instrument generally used in our service.

I understand there are three parties on the American Boundary Survey, each party is supplied with an observer, computer, and topographer. The party I had the pleasure of visiting were civilians, and Mr. Harris, the gentleman in charge, was an able and experienced man. The following day Mr. Campbell, the Chief Commissioner, accompanied by his Secretary, Mr. Warren, with Lieutenant Parke of the United States, Topographical Engineers, and Mr. Gibbs arrived in Mr. Harris's camp. I returned with them by the Colville road to the fort, and enjoyed their frank hospitality and most agreeable society. I could not learn much respecting Colonel Hawkins, except that he had started for England on a question concerning the Island of San Juan. The party of our engineers under his command have had a great many difficulties to contend with.

Having now terminated my account of the explorations effected by myself from the Columbia river westward to where the 49th parallel intersects the Cascade Range road, I beg leave to submit the report of my Secretary, Mr. Sullivan's explorations from the same starting point on the Columbia River to the point where we returned to recross the Rocky Mountains in September 1858.

Sir,

Fort Colville, October 1859.

Your instructions of 8th September, 1859, directing me to start from Fort Shepherd, and explore the region of country to the northward of the 49th parallel of north latitude, and to the eastward of the fort, have been carried out, and I am rejoiced to say, with a result far more satisfactory than at first sight I was led to anticipate.

I beg to submit for your information, the following detailed account of my branch expedition, also a sketch map, showing the route we pursued.

On September 11, I started from Fort Colville, lat.  $48^{\circ} 37' 46''$  north, and arrived at Fort Shepherd on the evening of the 13th. At this place I engaged three Sanihk Indians, and despatched two more of the same tribe in search of the only Indian who was said to know the country that I was about to explore. Previous to starting also, I obtained observations for latitude, and found the fort to be three quarters of a mile to the north of the frontier line; consequently the point at which the Pendoreilles joins the Columbia River, is in British territory. Having crossed the Columbia on the 15th, we then proceeded up the valley of the Pendoreilles for twelve miles, and encamped to await the arrival of our Indian guide. An observation at this place gave latitude  $49^{\circ} 0' 36''$  north. Six miles still further up the valley, and we struck the mouth of Salmon River, a small tributary of the Pendoreilles. Up to this point the whole of the river valley is in British dominion, but beyond, the Pendoreilles is in American soil.

The gold mines on this river are at present confined to this small portion of the valley, and the miners are engaged in mining the flats and bars of the river only; they realize from 15 to 20 shillings per day with the rocker, and from 35 to 40 shillings with sluices.

They are prevented from reaping rich harvests owing to the quantity of water in the stream, as well as the absence of capital for the purposes of ditching and carrying water to advantageous places in the neighbouring mountains.



Every prospect is in favour of the country being auriferous; the gold becomes coarser the further the miners advance into the bed of the stream, and the adjacent mountains possess every indication of containing gold.

Speculating companies, such as those that obtained large dividends from working the mountains of California, have not as yet commenced operations in the mountains of this part of the country, but from all accounts they would be amply repaid, were they to turn their attention to the mines on the Pendoreilles river.

From the isolation of the mines, provisions and every other necessary bring enormously high prices, and the consequence is, that the miners here, who are not in possession of more extensive means for mining than by the common rocker and sluice, find great difficulty in doing more than just to provide for the passing day.

The gold found in this part of the country is, to use a miner's expression, "lighter" than Californian gold, that is, a much larger bulk of Pendoreille gold is requisite to weigh an ounce than that of California. Indeed, I have heard that Californian gold is one-eighth heavier.

The bed rock on the Pendoreilles, as well as that on the Columbia, between Colville and Fort Shepherd, is a blue slate with a large admixture of quartz veins. The immediately overlying rock is a very hard grey granite. In many places, mica is in great abundance, and up the Salmon River especially, mica is largely distributed.

On our arrival at this river, I "prospected" myself in the stream and washed out  $2\frac{1}{2}$  *dz.* in one pan of dirt, and 2 *dz.* in another. One of my Indians, more fortunate than I, picked up in the crevice of the rock, a piece of gold which valued 15s. 6 *dz.*

Here our party experienced great difficulty in pushing through the masses of fallen timber, and dense undergrowth, which latter was so tightly interlaced as almost to defy the power of the axe altogether. My Indians were in favour of returning to the fort, I told them that it was my determination to advance, and at once packed the horses with all the articles that were not absolutely necessary for the journey, including about half the provisions with which we had left Fort Colville, and sent them back to Fort Shepherd under the charge of a half-breed, who was mining at the mouth of the Salmon River. Then, dividing the remainder of our provisions and baggage into as many parcels as there were people in the party, I told the Indians that both Mr. Margary and I, intended to carry the same weight as they, so that the sooner we started the sooner the journey would be done.

Mr. Margary, the gentleman belonging to the Hudson Bay Company's service, whom Mr. Blenkinsop had desired should accompany me, was of great assistance on this as well as on many subsequent occasions; he explained to the Indians my determination, and took to his pack as cheerfully as he would have done to a more pleasant occupation.

It was with reluctance at very best, that the Indians followed our examples; at length, all our loads strapped, we forced our way through the woods, and enjoyed a good supper and a most comfortable night's rest at the forks of Salmon river.

It would be needless to journal the account of each day's march here, and it will suffice to inform you, that in five days from this point, by following the more easterly branch of the Salmon river we had attained the summit of the dividing ridge between the Columbia and the Kootanie, or Flat Bow River, at an elevation of 1500 feet above Fort Shepherd. An observation for latitude here, assured us that we were still in British territory, it being  $49^{\circ} 5' 24''$  north, and judging from our course, I consider, that we did not dip to the south of the 49th parallel throughout the whole of the distance from Fort Shepherd to the height of land.

The ascent to reach this highest point of the dividing ridge is very gentle, and there is not the slightest obstacle to prevent the accomplishment of an excellent road. The descent, on the contrary, to the stream which is tributary to the Kootanie or Flat Bow River, is rather abrupt, but fortunately it is only for about 300 feet, when the river valley is reached.

At the height of land I was in hopes that we had struck an Indian trail, when suddenly our guide informed me that we had been travelling for the last half-hour, not upon an Indian, but a caribœuf road, and that now we were forced to leave it. Caribœufs frequent this part of the country in large numbers, as the woods are traversed by their beaten paths. They are induced to visit this tract of country in order to feed upon a very large leaf which grows in great abundance on the moist lands high up in the mountains.

From this place a most extensive view of the country was obtained; the rugged mountains to the south-eastward, which border the right bank of the Pendoreilles in the American territory, rising to an elevation of about 2500 feet, and clothed to their summits by dense pine forests, seemed to bid no hopes to strangers passing there; while the gentler undulations from the Columbia valley up to this point, offered no impediments but those resulting from decaying masses of vegetation, the young scrub pines which had risen on their ruins, and the stunted undergrowth; obstacles which disappear entirely before the woodman's axe.

On September 24th, we made a very long and tedious journey in our descent towards the Flat Bow Lake, crossing and re-crossing the stream to avoid fallen timber, and such obstacles as could be avoided at the expence of a little wetting, which, considering the quantity of rain that fell for a few days previous, was productive of little inconvenience. At nightfall of this date, the rain commenced in earnest, we were very comfortable however, having constructed an excellent shelter with the branches of the Cedar, and being provided with as much wood as we were disposed to burn.

On the 26th September we arrived at the Flat Bow Lake, and an observation showed us to be in lat.  $49^{\circ} 13' 7''$  N., or 15 miles to the north of the boundary line. We were all glad to have come to the end of our journey, (as far as walking was concerned,) for we were all more or less fatigued, and needed mocassins.

I should remark here, that that piece of country extending from the summit of the dividing ridge to the shores of the Flat Bow Lake, presents much greater difficulties than the slope towards the west; but at the same time I consider that with a sufficient number of men for the purpose of clearing, and the time necessary for such an undertaking, I might have succeeded in making a very practicable trail for my horses. The greatest obstacles throughout the road from Ft. Shepherd, eastward to the Flat



Bow Lake, is fallen timber; and great advantages for a road exist, *since the traverse of this piece of country was effected, by the valleys of two rivers, the whole of the way.*

The land to the southward of the Flat Bow Lake is flat and swampy, and preserves this character to the distance of 25 miles to the south-eastward of its southern extremity, where a range of mountains extend along the course of the Kootanie River, and prevents its continuation. The river itself has no current in this part of its course, and on either bank there are numerous sloughs and swamps teeming with wild ducks, geese, and other aquatic birds, that make these marshy lands a special rendezvous in the fall of the year, when they desert the less genial climate of the north.

From these swamps also, the Kootanie Indians obtain the klusquis or thick reed, which is the only article that serves them in the construction of their lodges, and the klusquis is an article of barter with them to other tribes whose lands do not produce this necessary.

As soon as we arrived at the lake we were met by the Kootanies, and treated very hospitably. They inquired as to the object of our visit, and furnished me with a large amount of information relative to the country to the eastward.

By referring to the sketch map accompanying my letter, you will observe that I have laid down a road as "Kootanie Trail to the Columbia Lakes (abandoned)." This road has been for many years out of use, it is altogether in British territory, but according to the accounts of the Indians, two very precipitous mountains have to be crossed before arriving at the origin of the Columbia river. I expressed a desire to travel this road, and was assured that at present it is entirely impracticable for horses. The Kootanie chief said, "if you take all the young men of my tribe and furnish them with axes, they will cut through but a very small piece in a day, your camp fire of one night will be in sight of your camp fire the night following; the fallen timber is too bad, the trail that once was clear is now blocked up by reason of the fires."

The next road laid down, and which I have called "Mr. Sullivan's Trail," is the one which the Indians described as very practicable, and which, for many reasons, was the one adopted.

I made a few presents to the chiefs and principal men, and obtained from them the loan of four horses, and the services of two young men as guides. Our Sanihk Indians we left at the Flat Bow Lake, and supplied them with ammunition with which to support themselves during our absence. Our provisions were very small, consisting of 30lbs. of flour, (all my meat had been consumed,) 15lbs. of which I turned over to the two Kootanies, and retained 15lbs. for Mr. Margary and myself.

At noon of September 30th, we left Flat Bow Lake, and keeping a south-easterly course for a few miles, crossed the Kootanie River in lat.  $49^{\circ} 3' 6''$  N. by observation, and encamped here for a whole day, having lost one of the horses.

Pursuing our south-easterly course for about nine miles, we struck the road laid down in the sketch map as "Mr. Sullivan's trail," and after making an ascent of 500 feet, we descended and encamped at nightfall in a small prairie affording excellent water and grass for our horses.

The following morning our horses had strayed backwards on the track towards the Kootanie camp. we were accordingly delayed from starting till 2 p.m. The day was cloudy, so that I was prevented from obtaining the latitude, but from my dead reckoning I consider that our encampment was about one or two miles to the north of the 49th parallel.

By reference again to the sketch map, you will observe that there is a tract of country indicated by "Practicable Trail." I wish to remark that this trail is not really in existence, but from the nature of the country I am inclined to believe that a road may be made in that direction with no degree of trouble, and which would have the material advantage of throwing the whole road altogether into British dominion, as well as the secondary advantage of escaping the ascent of 500 feet alluded to above. Indeed, the mountains here may be penetrated in many directions; they do not assume impracticable shapes, the highest does not exceed 2000 feet, many do not attain the altitude deserving the appellation mountain, and their gently sloping sides with wide valleys between, seem to offer facilities for roads in many ways.

On the evening of the 4th of October, we struck a tributary to the Kootanie River, going off to the south, and proceeding a little distance up the stream, we encamped on a fine prairie close to its right bank.

October 5th we were off before sunrise, and followed up the stream through a most beautiful valley, offering no obstacles whatever to our progress, water and fine grass everywhere, and we passed the best camping places that I have seen to the west of the Rocky Mountains. The Kootanie Indians resort to this part in search of beaver and caribœufs, and from the indications at their old camps, a large party of them had preceded us by about four or five days. An observation for latitude showed us that we were keeping to the north of the frontier line, being lat.  $49^{\circ} 6' 48''$  N.

October 6th we reached the highest point since leaving the Flat Bow Lake. At noon an observation for latitude was  $49^{\circ} 15' 14''$  N., and at our night camp of this date we were at least 10 miles still further to the northward, for we made a very long journey from our dinner camp. Here we had arrived at the most easternly of the two small lakes from which the tributary stream issues to join the Kootanie or Flat Bow River. I estimate the elevation to be 3300 feet above Fort Shepherd.

Our Kootanie guides now gave us the welcome intelligence that we were only one day's journey from the crossing place on the Kootanie River, where the Indians traverse the stream on their road to trade at the small Kootanie post situated near the western base of the Rocky Mountains, and at the distance of five miles to the south of the 49th parallel. I ascended a mountain and saw the heights which border the right bank of the Kootanie River, and I estimated the distance at 12 miles, to which point a broad open valley extends without any obstruction.

Up to this point, since leaving the Flat Bow Lake, we had travelled a most practicable piece of country; a good horse trail exists, and with the greatest ease a waggon road may be accomplished. Indeed, in the event of the requirements of commerce, as far as my experience of the mountains is concerned, I could not point out so extensive tract of country where a railway may be brought with comparatively so small expense. There is no one place on the whole of the trail between the Flat Bow Lake and the borders of the Kootanie or Flat Bow River, where a sudden ascent of 150 feet is requisite.



The whole ascent to the two lakes is small and very gradual, and the valley of the tributary river is wide open and flat.

Our provisions were entirely exhausted on our arrival at these two lakes, and the Indians told us that for the next day's journey on to the Kootanie River, a large quantity of burnt timber was lying across the road, and there was a possibility on this account that we should require two days to cut our way through, but they assured me at the same time that it was only timber that would be troublesome to us, nothing beside lay in our way.

Great dependence, as you are aware, can be placed on the word of an Indian of this tribe: the Kootanies never steal, rarely lie, and are decidedly the best converts to Christianity of all the Indian tribes among whom our travels have led us.

I was very reluctant to abandon this 12 miles of country, but under the circumstances there remained but one alternative, viz., to retrace our steps.

We had been living on two meals a day on the upward journey, and as our Indians were certainly gifted with most extraordinary appetites, their small supply of flour was soon consumed, and they made demands on our own little store, which we could have easily managed without their assistance. So now we were entirely dependent on the few small pine pheasants which chance might throw in our way.

I should certainly not have returned were it not that I was thoroughly convinced of the entire practicability of a road from that point on the Kootanie River, where the expedition penetrated in September 1858, right up to Fort Shepherd in the valley of the Columbia, more than three-fourths of which might be rendered available for a railway, and considering the stupendous triumphs of engineering art in modern times, I should be sorry to add that the remaining fourth is beyond the bounds of practicability.

We returned to the Flat Bow Lake on the 10th of October very hungry, having fasted two days, and found our Sanihk Indians anxiously awaiting us. The following day I hired two bark canoes, crossed the Flat Bow Lake, descended the Kootanie River, from thence into the Columbia, and arrived at Fort Colvile on 15th October.

In conclusion, I beg to express my sincere thanks to Mr. Margary for his most friendly society and cheerful assistance throughout a trip which I shall ever remember with unspeakable pleasure, and I trust that hereafter I may hear of him occupying a high position in the service of the Hudson Bay Company, for which both by his intelligence, energy, and management of Indians, he is eminently fitted.

Capt. J. Palliser,  
Commanding Expl. Exp.,  
&c.      &c.      &c.

I have, &c.  
(Signed) JOHN W. SULLIVAN,  
Secretary.

The whole of the country which I have travelled from the Columbia to the westward is auriferous; there was hardly a creek of any importance in which more or less gold cannot be washed. This has rendered the prices for all articles of clothing, food, &c: enormous, as you will see by glancing over the accounts for the articles furnished to the expedition on this side of the mountains. Flour is now 2*l.* 17*s.* a bag of 100 lbs. and Pork 2*s.* 11*d.* per lb. Articles of clothing and food are the only pay with which you can engage Indians for a journey. Money cannot circulate in the country owing in a great measure to the absence of coin.

Horses which I had been led to suppose would have fetched a high price in this part of the country, change hands at exactly one third of their value east of the mountain. The American soldiers brought up a large number here (having been especially allowed to do so); after their arrival, being compelled to sell, horse, saddle, and bridle went together for 5*l.*, the price of a new Spanish saddle!

Under such circumstances, it was utterly impossible to form even an approximate estimate of the expenses that I have since been obliged to incur. But I can only say, that I have always endeavoured and will always continue to confine the expenditure of public money within the smallest limits.

Gold commences to be found abundantly on the Similkameen; all those that come from thence seem impressed with the idea that it exists in great abundance somewhere in the mountains surrounding its source. A man who arrived here only yesterday informed me that he had washed out 2 ounces of gold dust in one forenoon. I regret that I have neither time nor funds to make a tour through the valley of the Similkameen. I am credibly informed that it abounds in fine timber, and a most fertile soil, and is a far more eligible place for settlers than the valley of the Columbia.

If I may venture an opinion concerning a piece of country, over which I have not myself travelled, also concerning which I can only speak from collected information, I would suggest that the easiest way to open a road in the west of this country from the sea would be from Fort Hope to follow up the valley of the Fraser River, thence a little south of Shooshewap Lake to the Great Okanagan, passing on either side of that lake, and thence to the western shore of the more northern of the Columbia lakes, probably in latitude 50° 20' N. about. A steamer down the Columbia lakes would connect this road with the south extremity of the lakes, only a very short distance, say 15 miles, from the line of country already explored and described in Mr. Sullivan's report.

One objection to this line of route would be that it would not afford as many advantages to agricultural settlers as one passing the Cascade Range over or near Mansen's mountain down into the Similkameen valley.

Should such a very arduous undertaking be attempted, the best course from Fort Hope would be to ascend the valley of the Kleh-Kwunnum till you fall on the Whatcomb Trail, which you follow up for a short distance, leaving this to pursue the valley of the Skagit River, cross the mountains there to the head waters of the Similkameen, and down the valley along the Hudson's Bay Company Trail to the western extremity of our explorations.

I hope, however, to obtain additional information from Doctor Hector, whom I expect by this time to have arrived at Vancouver, after having traversed the country in question.

Snow has commenced to fall, the season of 1859 is terminated, and in conformity with the directions of Her Majesty's Government, I am drawing the affairs of the expedition to a close. I shall start, accompanied by Mr. Sullivan, next week for the Dalles; we travel on horseback a journey of about 16 days, thence we shall take the steamer for Vancouver, where I hope to meet Dr. Hector. I shall then have the honour of again communicating with Her Majesty's Government, and shall draw on the Paymaster General for balance of salaries, homeward expenses, &c.

I have, &c.

Her Majesty's Secretary of State  
for the Colonies.

(Signed) JOHN PALLISER,  
Commanding Exploring Expedition.

No. 4.

No. 4.

COPY of a LETTER from Captain PALLISER to Her Majesty's PRINCIPAL  
SECRETARY OF STATE FOR THE COLONIES.

London, July 8, 1860.

(Received July 10, 1860.)

MY LORD DUKE,

IN reference to my letter of 22d October 1859, I beg leave to draw your Grace's attention to this fact, as one of the results of the expedition under my command, viz., that we have succeeded in finding a way from Red River Settlement across the Rocky Mountains to the mouth of Fraser River, entirely within British territory.

I did not deem it necessary to prosecute the exploration further than  $119^{\circ}$  of west longitude, because in that neighbourhood I fell upon the Hudson's Bay Company's track, bearing away over Mansen's Mount, altogether north of the boundary line; in other words, Mr. Sullivan and I explored and discovered a route connecting the Kananaskis's Pass of the Rocky Mountains with that point on the Hudson's Bay Company's trail over the cascade range, from which that trail passes, altogether through British territory.

This Hudson Bay trail, which is used for bringing in supplies from Fort Langley (on the west coast) to Colvile, crosses the boundary line for the first time in the neighbourhood of the Lesser Okanagan Lakes, in long.  $119^{\circ} 10' W$ . Being already aware of this fact, and being subsequently confirmed in this opinion by Lieutenant Palmer, R.E., who made a reconnaissance of the Hudson's Bay Company's trail all the way from Fraser River to Fort Colvile, I did not think it necessary or justifiable to cross the Cascade Range so late in the season; such a course would have been attended most probably with the loss of all the horses, and no further increase of knowledge, with regard to this old established trail, than that already known to the Hudson's Bay Company, and already supplied to Her Majesty's Government by Lieutenant Palmer.

Although I consider this fact established, viz., that a line for a route has been discovered from Red River Settlement to the west coast of the continent, and that line moreover entirely within British territory, yet I wish distinctly to be understood that I think it far from being the best that could be discovered. Time did not admit of a series of attempts in a more northerly direction.

Dr. Hector's explorations, when within 60 miles of his exit on Thompson's River, was prematurely closed by the advance of winter and the absence of provisions, while forcing his way through timber so thick that he could not penetrate faster than from three to four miles a day, and for a more detailed account of which I refer you to his report accompanying this letter.



The quantity of territory east of the Rocky Mountains explored by the expedition in the season of 1859 was so large that very little time remained for the further prosecution of our searches to the westward of the Columbia River, in a country where winter advances very rapidly.

I very much regretted that time did not enable me to recommence at the forks of the Columbia and McGillivray's River, and in a canoe to ascend the Columbia, *said* to be navigable for steamers all the way up to the great Columbia Lakes, to a large table land, along which it is *said* that horses may travel, passing either north or south of the Great Okanagan Lake to the forks of the Fraser and Thompson's Rivers. I only speak of the natural advantages of this line of route from hearsay, but my informants were an intelligent officer of the Hudson's Bay Company, Mr. McDonnell, who was for many years in that country, also several half-breeds who have travelled there with horses and mules. I have already alluded to this proposed route at the termination of my letter dated 22d October 1859.

The connexion of the Saskatchewan Plains east of the Rocky Mountains with a known route to British Columbia may be considered as the last of the results of the expedition.

I shall now give but a slight sketch of our journey to Vancouver's Island, as it was through American territory. We started from Fort Colville on 2d November 1859 with horses. Although the road is quite as good and better than many in civilized countries, yet the country beyond the immediate valley of the Columbia at Fort Colville is quite unsettled, and we had to carry our provisions along with us, and continued, as we had hitherto done, to camp out at night.

We assembled at Colville (after the termination of our several branch expeditions), in lat.  $48^{\circ} 37' N.$ , long.  $118^{\circ} W.$  Fort Colville is situated on, perhaps, the only spot favourable to agriculture for many miles of country through which that river flows, being an alluvial tongue of land formed by a bend of the river. Many emigrants came over some years ago from Red River under the erroneous impression that there was much land in that country available for the purposes of agriculture; they were, however, disappointed, and wandered in search of land southernly, a few only settling on a tributary of the Columbia, the valley of which affords a narrow strip of arable land for about 30 miles south-east of Colville. The rest finally settled at Walla Walla on the Wilhamet valley.

The discoveries of gold on the Similkameen has raised the price of provisions very considerably; and that, with a large camp of American troops, render the supply very inadequate to the large demand upon its produce. Consequently large trains of American waggons ply up and down between the Colville camp and the nearest points on the Columbia accessible for steamers, which vary according to the state of the water. Since the discovery of gold on the Similkameen, the mines on Clark's Fork, discovered in 1852, have been comparatively deserted; some few miners still remain there, however. The mines on Clark's Fork have this disadvantage, from the steep and rocky nature of the banks it is difficult to gain access to the bed of the river from which the gold is procured. A project therefore has been for some time in contemplation, viz., to cut off all the water from the river, and send it into the Spokane by means of a canal running in a southernly direction to a point on the Spokane, where these two rivers are only 35 miles apart. This is a project on a scale worthy of California, but at present far beyond the means of settlers and miners in the country.

On 2d November we commenced our journey homeward, our party quite assuming the dimensions of a caravan, as we were accompanied by the family of Mr. Blenkinsop, under the charge of his second in command, Mr. Margary. We followed the waggon road, which has been constructed at great expense for the use of the American army. It leaves the Columbia at first following the course of Mill Creek; the first 60 miles lay through magnificent forest, composed of the "*pinus ponderosa*," a tree which stands free of underwood, until crossing the Spokane, when we entered the Great Columbian Desert. This district of country, extending for about 160 miles, is composed of tabular flows of basalt, covered with loose sandy soil, supporting a scanty growth of bunch grass. So little feed is there, that in crossing this plain corn is always carried for the use of the animals. Water is only to be found at long intervals, and there is hardly any wood, a want which is severely felt by the traveller, as there is no "*bois de vaches*" to supply its place.

After crossing Snake River, the southern branch of the Columbia, a swift and magnificent river a half a mile wide, and flowing through a wonderful rent in the basaltic rocks, which form these plains, we arrived at Walla Walla, where there is a large garrison of American troops. Here we were kindly entertained by Capt. Dent, the officer commanding, and the other officers attached to the division. It is necessary to keep this

large corps at Walla Walla, in order to protect the settlers from the incursions of the Indian tribes on the border, who in this part of the country are hostile towards the Americans. Only a few years ago a party of American troops experienced a severe repulse in the neighbourhood of the Spokan River, which, however, was amply avenged during a campaign of the ensuing summer. We had experienced very severe weather in travelling to this place, bitter cold, accompanied with heavy falls of snow; this, together with the want of food, had so reduced our horses, that we were strongly advised not to attempt to proceed any farther with them, as there was much high ground to be crossed, where we might be delayed by deep snow.

We accordingly left them in the hands of an agent for sale, dismissing the only man whom we had brought down from Colville, and proceeding to old Walla Walla on the Columbia River, distant 30 miles. We had hoped to avail ourselves of the American steamer, which plying between this point and the Des Chutes, but unfortunately on our arrival the agent informed us that she had blown up.

We were now very much perplexed to know how to proceed with all our luggage, books, instruments, &c., down the Columbia; there were no boats, nor any Indians in the neighbourhood. At length some Indians arrived with the intelligence that a schooner was making its way up the river, and the American agent, who had become one of our party, calculated that the schooner would not arrive for some time, owing to the prevalence of a contrary wind and disadvantage of course up stream.

It was now about the middle of November, and I feared being caught in the ice, I determined therefore to purchase two canoes from the Indians, and descend to the Des Chutes.

In order to carry out this plan we were obliged to leave our luggage, such as books, maps, instruments, &c., with the agent, to be forwarded by the schooner whenever she should return. We preferred incurring this delay to running the risk of taking our baggage in the canoes, which on this part of the Columbia are very small and of the most wretched description. The whole of this district is devoid of timber, therefore the Indians depend solely on the logs of drift-wood which float down from the Columbia's upper waters from time to time.

Of these they take the best suited for the purpose, burning and hollowing them out, and at best they are always small, misshapen, rotten, and dangerous. We ran down to the Des Chutes, 140 miles, in  $2\frac{1}{2}$  days, arriving there at 10 o'clock at night on the third day, after running the rapids by moonlight. We had engaged one Indian who knew the river to steer the foremost canoe. On this our last day in the canoes we found no timber on the banks of the river to light a fire and camp, consequently were obliged to push on far into the night. The ice actually formed around us we arrived.

At the Des Chutes the Columbia falls in a succession of rapids as far as the Dalles, and the communication is open between those places by an excellent waggon road. The distance between the Des Chutes and the Dalles is about 12 miles. At the Dalles is an American steamer, plying between that place and the Cascades, where the Columbia falls into rapids for only a very short distance, not exceeding two miles. On leaving the steamer at the Cascades, the passengers walk along a boarded platform, on which also is constructed a train to convey the luggage to the other steamer in waiting at the lower end of the portage, from which point the navigation is open to the Pacific.

It may not be out of place here to diverge for a little from the account of our homeward journey, and give a description of the capability of the Columbia for steamer navigation, commencing from the mouth at the Pacific Ocean. From Astoria at this river's mouth it is navigable by steamers as far as the Cascades, a distance of 135 miles. Here a boarded portage and tramway not two miles in length enables the traveller to reach a second steamer, which runs up to the Dalles, distant about 48 miles. At this place a steep waggon road, which is kept in good order, takes the traveller to the Des Chutes, a distance of 12 miles, where a third steamer runs up as far as Old Walla Walla, this steamer however, when the occupation of the upper country by troops rendered it worth her while to take freight further up the river than usual, ran up to Priest's Rapids above the mouth of Snake River, and actually ran up Snake River itself, and found it navigable for a considerable way. Again, the Columbia River is said to be navigable from the Priest's Rapids to the mouth of the Okanagan River; and I have heard since my return that a steamer will be placed there by a private American Company. Above the Okanagan is a 10 mile rapid, and above this the river is said to have but one rapid to impede the navigation all the way to Fort Colville. From the upper part of the Kettle Falls at Colville there are but two portages interrupting the steam navigation to the mouth of the Pendoreilles River in British territory, and from this point I am credibly informed the



river is available for steam navigation to beyond the upper of the two great lakes of the Columbia to a point where a road might be made across a level plain (as I have mentioned above) either north or south of the Great Okanagan Lakes to the forks of the Fraser and Thompson's River (see above, also letter dated 22d October 1859).

On 30th November we arrived at Vancouver, and were most hospitably received by Mr. Graham, the officer in charge of the Hudson's Bay Company's fort there. Vancouver is the head-quarters of the American troops stationed in Oregon, under the command of General Harney, whom we found shortly after his return from San Juan, and who received us most hospitably.

The Hudson's Bay Company's establishment at Vancouver is considerably reduced at present, and their American neighbours offer them great annoyances, even so far as seizing their landed property, by a process termed in American parlance, "jumping their claims." A good deal of correspondence was being carried on while I was there upon the subject.

The Willamette River flows into the Columbia at a short distance below Vancouver; on it is situated Portland, one of the most flourishing towns in Oregon. From this town there is regular steam communication twice a month to San Francisco. These ocean steamers also call at Victoria, taking passengers, and delivering British letters for Vancouver's Island.

The American steamers start from San Francisco, pass down the straits of Juan de Fuca, carrying the letters past Victoria, up Admiralty Inlet and Puget Sound, to Olympia, then on their return call at Victoria, Vancouver's Island, deliver the mail and land the passengers.

Embarking on board one of these steamers, Mr. Sullivan and I started for Vancouver's Island, leaving Dr. Hector at Fort Vancouver, with directions to wait one fortnight for the luggage, &c., and then to join us at Victoria.

At Victoria we found great commercial industry, and much promise of progress. The inhabitants are English, Scotch, Americans, Chinese, and Indians, who rove about the streets, the former seeking and commencing to find employment, the latter begging, drinking, and not likely ever to become useful to the community. A handsome serviceable wooden bridge, James's Bay, connects the Government buildings with the town. The Hudson's Bay Company have one of their forts or picketed enclosures in the centre of the town, splendidly supplied with almost every kind of merchandise. Besides this, warehouses, stores, and shops carry on a good business; money is worth about  $2\frac{1}{2}$  per cent. a month, on good security; good tradesmen can find abundance of employment. As there is a great scarcity of women on the island, female servants are in universal demand, and obtain very high wages from 30 dollars to 50 dollars a month.

The markets are abundantly supplied with the best beef, mutton, fish, poultry, eggs, and vegetables.

The town when I left is not yet lighted by gas, but I have no doubt that will shortly be accomplished.

Esquimaux Harbour is about three miles from Victoria, where the "Ganges" (Admiral Baynes) and several other steamers are lying. Esquimaux is also the head-quarters of the Boundary Commission, under Col. Hawkins, and then under Capt. Haig.

We were most kindly and hospitably entertained by Governor Douglas, Admiral Baynes, and all the officers of the fleet; also by Captain Haig and his brother officers.

On the 5th January I despatched Mr. Sullivan to England, with directions to join me again as soon as I arrived in London; and waited myself for Dr. Hector's arrival in Victoria from the Columbia River.

Dr. Hector joined me at Victoria on the 16th January 1860, with news of the luggage being as yet safe, but frozen in on the Columbia, about 30 miles below old Walla Walla. I then despatched Dr. Hector at his own request, and in conformity with the wishes of Sir R. I. Murchison, to examine the coal structures at Nanaimo, and make a short tour in the vicinity of that portion of the island. He accordingly started with my servant, James Beads, in a canoe, with bedding and provisions for a week's trip. Although the time which I allowed Dr. Hector was but short, nevertheless he acquired much valuable information, and received every assistance from Mr. Nicol, the Hudson's Bay Company's officer in charge of the coal mines, in effecting his object.

Shortly after this I went myself to visit a part of British Columbia, and was most kindly and hospitably entertained by Capt. Parsons, Col. Moody, and the officers of the Royal Engineers quartered at New Westminster. This place is situated on the right bank of Fraser's River, about 12 miles above its bar. The bank chosen for the site of the town is very disadvantageous; first, on account of its steepness, and again by the

size and density of the timber, causing the clearance of it to become a matter of such an enormous expense as far to exceed the fee simple value of any land in a still unoccupied country. This advantage would be possessed, however, by New Westminster, should it ever become a British town, that Burrard's Inlet, which is a most excellent harbour, would be easily accessible from the town, seven miles over land. The site, distant on the river about  $1\frac{1}{2}$  miles above the town, chosen by Col. Moody and the engineers as the site for the barracks and officers' houses, is preferable to that chosen for the site of the town. But it is worth serious consideration, whether it would not be more advisable to proceed about 18 miles up the river and choose the site where Fort Langley now stands, where there is a good deal of naturally cleared land, and the timber not formidable. The site of Fort Langley for a British town would have this disadvantage, it is on the same side of the river as the American boundary line.

On 14th March our baggage arrived in Victoria, and almost at the same time with the American steamer for San Francisco. By some exertion we managed to get our baggage and ourselves on board in time, and started from Esquimault for San Francisco. Dr. Hector and I arrived at the latter place on 20th March 1860, and found it impossible to get room on board the steamer about to start for Panama and Aspinwall, being obliged therefore to wait for a fortnight, we employed our time in the interior of California visiting the gold mines of Grass Valley and Nevada, and also the giant trees in the Sierra Nevada range. Returning for the steamer on the 5th of April, we travelled together as far as Panama, when I proceeded, via the Havannah, New York, and Montreal, to England, leaving Dr. Hector to await for the British steamer via Southampton, and by which he anticipated my arrival in England.

The territory which has now been examined and mapped by this expedition ranges from Lake Superior to the eastern shore of the lesser Okanagan Lake, and from the boundary line to the watershed of the Arctic Ocean. This large belt of the continent was explored in three seasons.

The first season was devoted to the examination of its south-eastern portion from Lake Superior to the elbow of the south branch of the Saskatchewan, and from the British boundary line or 49th parallel to Fort Carlton, in lat.  $52^{\circ} 52' N.$ , long.  $106^{\circ} 18' W.$

The second season was devoted to the examination of the territory between the two Saskatchewan, to the exploration of the Rocky Mountains, and to the discovery of the passes available for horses in the British territory.

The third season commenced with a long journey from our winter quarters at Edmonton in lat.  $53^{\circ} 34' N.$ , long.  $113^{\circ} 20' W.$ , through the Blackfoot country to the most western point in the neighbourhood of the boundary line, previously reached by the expedition from the eastward in 1857. A westward course was then resumed along the country between the South Saskatchewan and the British boundary line, thence once more across the Rocky Mountains. Finally, the connexion of a route practicable for horses was effected the whole way from Red River Settlement across the continent to the Gulf of Georgia, entirely within British dominions.

This large belt of country embraces districts, some of which are valuable for the purposes of the agriculturist, while others will for ever be comparatively useless.

The extent of surface drained by the Saskatchewan, and other tributaries to Lake Winnipeg, which we had an opportunity of examining, amounts in round numbers to 150,000 square miles. This region is bounded to the north by what is known as the "strong woods," or the southern limit of the great circum-arctic zone of forest, which occupies these latitudes in the northern hemisphere. This line, which is indicated in the map, sweeps to the north-west from the shore of Lake Winnipeg, and reaches its most northerly limit about  $54^{\circ} 30' N.$ , and long.  $109^{\circ} W.$ , from where it again passes to south-west, meeting the Rocky Mountains in lat.  $51^{\circ} N.$ , long.  $115^{\circ} W.$  Between this line of the "strong woods" and the northern limit of the true prairie country there is a belt of land varying in width, which at one period must have been covered by an extension of the northern forests, but which has been gradually cleared by successive fires.

It is now a partially wooded country, abounding in lakes and rich natural pasturage, in some parts rivalling the finest park scenery of our own country. Throughout this region of country the climate seems to preserve the same character, although it passes through very different latitudes, its form being doubtless determined by the curves of the isothermal line. Its superficial extent embraces about 65,000 square miles, of which more than one-third may be considered as at once available for the purposes of the agriculturist. Its elevation increases from 700 to 4,000 feet as we approach the Rocky Mountains, consequently it is not equally adapted throughout to the cultivation of any one



crop, nevertheless at Fort Edmonton, which has an altitude of 3,000 feet, even wheat is sometimes cultivated with success.

The least valuable portion of the prairie country has an extent of about 80,000 square miles, and is that lying along the southern branch of the Saskatchewan, and southward from thence to the boundary line, while its northern limit is known in the Indian languages as "the edge of the woods," the original line of the woods before invaded by fire.

On the western side of the Rocky Mountains, in the country which we examined, there were but few spots at all fitted for the agriculturist, and these form isolated patches in valleys separated by mountain ranges.

As the next result of our explorations, I shall briefly mention the different passes through the Rocky Mountains which we explored, alluding to the chief advantages and disadvantages of each.

The Kananaskis Pass and the British Kootanie Pass were examined by myself. Of these I consider the Kananaskis Pass the preferable one, both on account of its direct course through the mountains and its easier ascent.

The ascent to the height of land from the east is through a wide gently sloping valley, and the immediate watershed is formed by a narrow ridge, which, if pierced by a short tunnel, would reduce the summit level to about 4,600 feet above the sea. The descent to the west, into which Kananaskis Pass opens, is comparatively easy.

The British Kootanie Pass also opens out into the Kootanie River valley, but the altitude here to be overcome is much greater, amounting to 6,000 feet. There are likewise two ridges to be passed, which fact would form a very strong objection to this pass.

The Vermillion Pass, which was traversed by Dr. Hector, presents on a whole the greatest natural facilities for crossing the mountains without the aid of engineering work, as the rise to the height of land is gradual from both sides, a feature which seems to be peculiar to this pass. It would thus be impossible to diminish its summit level (which is less than 5,000 feet), as is proposed in the case of Kananaskis Pass, but on the other hand it would be the most suitable for the construction of an *easy waggon road*.

This, like the other two passes I have mentioned, also strikes the Kootanie River close to its source; but last summer Dr. Hector crossed the mountains by another pass from the head of the north branch of the Saskatchewan, directly to the Columbia River, in the vicinity of the boat encampment.

Leaving this latter pass out of consideration for the present, as all of the others open to the Kootanie River, it becomes necessary to consider the course by which it may be practicable to the coast of the Pacific without crossing to the south or American side of the boundary line. It was with great difficulty for this purpose even a partial examination of the country could be effected, owing to the rugged valleys which intersect it in a direction parallel to the mountains, and which, though not formidable themselves, are covered with such dense forest as to present obstacles to the traveller. Notwithstanding these difficulties, Mr. Sullivan succeeded in making his way on the north side of the boundary line, and at the same time following a system of transverse valleys, which might allow of the construction of a road without much trouble from the mouth of Kananaskis Pass to the Columbia, above Fort Colville. From this point westward I myself ascertained that it would be possible to reach the valley of the Okanagan, by which I believe the Americans have already commenced to connect the waggon road of the Columbia with the upper country of the Fraser River. While pointing out the circumstances that seem to favour the possibility of carrying a road through British territory, from the Saskatchewan to the Pacific, I wish to refrain from expressing any opinion as to the expediency of undertaking at the present time a work which would involve a vast amount of labour and a corresponding heavy expenditure. For how long a time in the year such a road would remain open, is a question as yet unanswered, and which has a most important bearing on the subject. In addition, the difficulty of direct communication between Canada and the Saskatchewan country, as compared with the comparatively easy route through the United States by St. Paul's, renders it very unlikely that the great work of constructing a road across the continent can be solely the result of British enterprise.

Not the least important results of the expedition are the meteorological observations which have been carefully conducted during the whole period of the explorations, both in the winters and summers, whether we were stationary or travelling. I lay stress upon this fact, as it affords materials for ascertaining the exact nature of the climate and means for a correct comparison between its nature and that of Canada.

The hourly magnetic observations were conducted by Lieutenant Blakiston, R.A., assisted by the other members of the expedition, during the winter of 1857-8. These were not, however, all carried on during the winter 1858-9, owing to the return of Lieutenant Blakiston with the instruments, the magnetic declinations however were attended to.

The astronomical observations and computations were placed in the hands of Mr. Sullivan, and the geographical position of the several salient points of the map are determined principally by his lunars, the rates of chronometers being, of course, too unsteady to be depended on while travelling through so rough a country.

The large botanical collection of our botanist, M. Bourgeau, has already been sent to Kew Gardens, where the specimens have been carefully arranged by himself under the inspection of Dr. Hooker, who highly values them.

Dr. Hector's specimens of fossils, &c. were from time to time transmitted to Sir Roderick Murchison at the Jermyn Street Museum, but from the nature of the subject much time must elapse before his results can be laid before Her Majesty's Government.

In conclusion, I have great pleasure in bearing testimony to the unceasing zeal and energy of my companions, whose valuable assistance has been instrumental in bringing the expedition to so successful a termination.

I have, &c.

(Signed) JOHN PALLISER, Capt.,

Commanding North British American Exploring Expedition.

Her Majesty's Principal Secretary of State.

Enclosure 1 in No. 4.

Encl. 1. in  
No. 4.

RECORD of ASTRONOMICAL OBSERVATIONS during 1859.

Date.	Place.	Obsr. Mer. Alt. Cor. for I. E.	Longitude by Account or Observation.	Latitude.
1859.		$\odot$ ° ' "	W. ° ' "	N. ° ' "
March 25	α Rocky Mt. Ho.	39 13 0	115 4	52 22 6
June 12	Hand Hills	61 21 35	111 30	51 33 13
" 30	" Lake*	61 34 32	111 27	51 21 41
July 7	Prairie near Red Deer River	61 6 40	111 12	51 14 19
" 13	Elekesohp Creek	60 42 25	110 58	50 53 7
" 15	Red Deer River	60 23 30	110 36	50 53 52
" 17	Prairie	60 4 10	110 20	50 53 47
" 19	16 miles to north of Bow River	59 56 30	109 54	50 40 22
" 20	8 miles to north of Bow River	59 51 20	- -	50 34 25
" 21	Crossing Place, Bow River	59 46 11	110 28	50 27 42
" 26	α Cypree's Mount, west flank	59 24 30	110 42	49 47 27
" 27	" "	59 12 55	110 36	49 45 38
"	α " "	59 0 5	110 35	49 44 38
" 29	n oll, south of Cypree's Mounts	58 59 22	110 35	49 31 22
" 30	Milk River	59 19 0	111 0	48 58 40
August 1	Cypree's Mounts	58 8 10	110 35	49 38 32

\* Longitude very accurately determined here by means of a set of lunar distances.



Record of Astronomical Observations during 1859—continued.

Date.	Place.	Obser. Mer. Alt. Cor. for I. E.	Longitude by Account or Observation.	Latitude.
		⊙ ° ' "	W. ° ' "	N. ° ' "
1859. August 1	- Cypree's Mounts, west flank, Small stream.	57 24 45	111 0	49 35 21
„ 8	- Belly River - - -	56 6 50	112 52	49 47 4
„ 9	- One mile south-west of tributary to Belly River.	55 52 5	- -	49 44 35
„ 10	- Hills near tributary to Belly River -	55 42 30	113 50	49 36 44
„ 18	- *Kootanie Valley - - -	53 51 10	115 12	49 0 3
„ 22	- Kootanie River - - -	53 0 17	115 0	48 32 0
„ 24	- Kootanie River (R. B.) - -	52 27 5	115 10	48 23 51
„ 26	- „ „ - - -	51 43 0	115 30	48 26 29
„ 27	- „ „ - - -	51 9 17	115 45	48 38 33
„ 28	- „ „ (Paddler's Lake) -	50 45 40	116 0	48 41 41
„ 30	- Kootanie River - - -	49 47 22	- -	48 57 20
„ 31	- „ 20 miles from Paddler's Ware.	49 7 32	116 36	49 15 33
September 1	- Large Lake, north shore, 5 miles east of west extremity.	48 24 57	- -	49 36 25
„ 2	- Portage, west extremity of second lake -	48 9 40	- -	49 29 50
„ 3	- Kootanie River - - -	47 58 37	- -	49 18 48
„ 4	- Mouth of Pendoreille's River - -	47 54 47	118 0	49 0 31
„ 8	- Fort Colville - - -	46 48 2	118 12	48 37 48
„ 17	- Fort Shepherd - - -	42 58 17	118 0	49 1 7
„ 18	- Observation Mount - - -	42 35 47	- -	49 0 15
„ 22	- West of Fort Shepherd - - -	40 59 43	- -	49 3 10
„ 23	- „ „ - - -	40 36 33	- -	49 2 44
„ 24	- „ „ - - -	40 10 43	- -	49 5 19

N.B. α indicates lunar distances observed.

April 23rd, 1859, at 6 h. 20 m. A.M. Mean Time, at Place nearly (Rocky Mount Ho.) in Latitude 52° 22' 6" North, the following Mean of Lunar Distances were observed :—

T. Mean Time at Place, 22 d. 18 h. 21 m. 42 s. observed distance α - . 107° 8' 5" I. E. + 4 40

Computed longitude - - 115° 10' 45" W.

March 29th, 1859, at Rocky Mount Ho. the following variation of Compass was determined :—

Also on the same date - - - - - 26° 30' E.  
26° 10' E.  
40'

Variation of compass, Mean - 26° 20' E.

(Signed) J. W. SULLIVAN,  
Secretary.

\* Longitude obtained at this point by a series of lunar distances, the mean of which is here tabulated.

Enclosure 2 in No. 4.

SIR,

London, July 8, 1860.

Encl. 2 in  
No. 4.

BEFORE entering on an account of my explorations in the Rocky Mountains last summer, it is necessary that I should briefly notice four different journeys I made while the expedition was in winter quarters at Fort Edmonton, from October 1858 to May 1859. The first was before the setting in of the snow, when I made a trip of ten days along the Saskatchewan to the Snake Portage, for the purpose of ascertaining the nature of the district included by the great bend of this river and north of my track of the previous winter from Fort Pitt to Edmonton.

Again in the following spring circumstances obliged me to travel to Fort Pitt, on the crust snow, in the end of March and to return in April, immediately on the opening of spring, giving me an opportunity of observing this very interesting district at the most unfavourable season, and thus forming a more accurate estimate of its capabilities.

In the months of November and December I examined the country in the neighbourhood of Red Deer River, and along the base of the Rocky Mountains, from thence to the old Bow Fort, thus connecting my work of the preceding winter with that of the main party of the expedition during the intervening summer. The fourth trip I have to notice was in January, February, and a part of March, when, by passing to the north from Edmonton, I struck the Athabasca, the most southernly branch of the Mackenzie River at the site of Fort Assineboine, and following it up, entered the mountains at Jasper's House, as shall be described.

The three first-mentioned trips embrace country of much the same character, partially wooded, but the timber being of the usual inferior quality, common to the whole Saskatchewan. The most valuable feature of this belt of country, which also stretches from Touchwood Hills, Carlton, and Fort Pitt south of Fort Edmonton to the old Bow Fort at the Rocky Mountains, is the immense extent it affords of what I shall term winter pasturage.

This winter pasturage consists of tracts of country partially wooded with poplar and willow clumps and bearing a most luxuriant growth of vetches and nutritious grasses. The clumps of wood afford shelter to animals, while the scrubby brush keeps the snow in such a loose state that they find no difficulty in feeding; the large tracts of swampy country, when frozen, also form admirable feeding grounds; and it is only towards spring, in very severe winters, that cattle and horses cannot be left to feed in well chosen localities throughout this region of country.

The proportion of arable land is also very considerable, and even late in autumn, which is the driest period of the year, and when the Saskatchewan for some weeks is fordable at Edmonton, there seems to be no want of water in the form of small streams and lakes. In spring I find the snow deeper in the neighbourhood of Fort Pitt than at Edmonton.

The winter of 1858-9 had been unusually severe, as far as the quantity of snow is concerned, and yet the average depth of snow, when undisturbed, as in the woods, was only about eight to twelve inches throughout a large district between Battle River and the North Saskatchewan at Edmonton. Towards the mountains, in a south-west direction, the quantity is still less; but during the early part of April, after the snow had nearly disappeared from Edmonton, a series of storms from the north visited the neighbourhood of Fort Pitt, so that in the middle of April there were from three to four feet of snow on the ground.

On the 12th January I started for Jasper House by way of Fort Assineboine and the Athabasca River, travelling of course with dogs. The track to Fort Assineboine passes through very densely timbered country to the north-west. On our second day we crossed a low height of land which separates the valley of the Saskatchewan from the waters which flow into the Arctic Ocean, and on the fourth reached the deserted fort of the Hudson's Bay Company.

The Athabasca is here a larger river than the North Saskatchewan at Edmonton, being about 300 yards, and flowing through a valley 250 feet deep, and from one to two miles wide.

For fourteen days I followed up this river on the ice, the great depth of the snow rendering our progress tedious, until within forty miles of the Rocky Mountains, where we arrived on 31st January.

Along the banks of this river were observed sections of the same coal-bearing strata that are exhibited on the Saskatchewan and the Red Deer River. There does not, however, seem to be the same quantity of coal.

Jasper House is in lat. 53° 12' N., and stands in a wide valley within the second range of the mountains, which present a magnificent appearance here. The Roche à Miette rises just opposite the fort to about 5,400 feet above the river. Although it was the depth of winter, I was able to ascend to the height of 3,300 feet, or 7,300 feet above the sea, so singular is the climate along the eastern flank of the mountains, as thaws alternate with severe cold, preventing the snow from accumulating to any great depth. The winds are either from the north or the south, following the course of the Athabasca valley, which traverses the mountains in that direction. Although ice forms to a great thickness on the lakes, there are but few places where the river freezes within the mountains, as even a slight rapidity of current serves to free the ice during a partial thaw. The night we reached Jasper House we had to ford a rapid on the Athabasca breast deep, carrying our dog sledges on our shoulders, although the thermometer was 11° below zero. Finding a difficulty in obtaining food for my 3 men and 16 dogs at this little outpost, where their sole trust is on the hunting of the big horn sheep, I despatched them back to Edmonton by the route we came, remaining behind myself to make a further examination of the mountains.

Accompanied by Mr. Mowberly, the gentleman in charge of the place, and a half-breed Iriquois, I followed up the Athabasca for four or five days, taking horses with us as far as the point where the pass branches off to New Caledonia. We turned from where the Athabasca is but a small rivulet, closely hemmed by precipitous mountains. Want of food compelled us to return to Jasper House sooner than I would have wished.



Besides his kindness in accompanying me on this hard trip, I am also indebted to Mr. Mowberly for a valuable meteorological register, kept until the month of April, the observations being made with instruments I left at Jasper House for that purpose.

Having thus travelled in the Rocky Mountains at the most unfavourable period of an unusually severe winter, I am enabled to state, that whatever may be the amount of snow on the heights of land and their western flank, the valleys of the eastern ranges are actually less encumbered by snow than much of the prairie country.

On 19th February I started on my return to Edmonton, keeping a direct course through the woods for that place. I was accompanied by an Iriquois and a young half-breed lad; we carried our blankets and a small quantity of provisions on our backs, trusting to our killing rabbits or other game on the route. In this, however, we were disappointed, and we were forced to make three days' provisions last for 10 days, when the Iriquois killed a moose deer. On 5th March I reached Lake St. Ann's, and was hospitably entertained for a day by the Roman Catholic Missionaries at that place. A single night's run on a well-beaten track brought me to Edmonton, which is 50 miles from the Mission. The country passed over on this route is very irregular and densely wooded. Our course lay for a considerable distance along McLeod's River, a tributary of the Athabasca from the south. At the place where I crossed Pembina River, another tributary of the Athabasca, a bed of coal is exposed on its banks, which is about eight feet thick, and at one point has previously been on fire.

Having now given a brief sketch of the manner in which I employed my time during the winter, I will pass at once to the more especial object of this report, which is to describe the continuation of the exploration of the Rocky Mountains made during the succeeding summer.

After spending the early part of the summer with the main body of the expedition, in examining the country of the South Saskatchewan, as has already been detailed in your letter to Her Majesty's Government, dated September 1859, I left you at the Cypree's Mountains on 3rd of August.

My party consisted of myself, four men, and my Stoney hunter, Nimrod, with 17 horses, eight of which were packed with my supplies, consisting of 240 lbs. of pemmican, 80 lbs. of flour, and 50 lbs. of sugar, along with a good supply of ammunition.

Keeping on the whole nearly to the north-west, and crossing Belly River where it joins the South Saskatchewan, in lat.  $49^{\circ} 47' N.$ , I reached the mountains at the old Bow Fort in ten days; besides meeting with a large band of Piegan Indians, who alone of all the tribes we have met showed a disposition to be more than importunate, I spent a day in a camp of the mountain Assineboines, at the mouth of the Ispasquehon River. They had been obliged to leave the Thickwoods, owing to the scarcity of game, and were here killing a considerable quantity of elk and grisly bears. They are almost the best disposed Indians we have seen, and have been converted to Christianity through the influence of the Wesleyan missionaries. Some of them cultivate little plots of ground in the neighbourhood of the Wesleyan Missionary Station at Pigeon Lake, and also at the old Bow Fort. Their principal crops are turnips and potatoes, which they grow more as curiosities than practically supplying them with food.

From the site of the Bow Fort I followed up my track of the preceding summer, along the valley of Bow River, until I reached Castle Mount opposite the Vermillion Pass. Instead of crossing the watershed at this place, the hope of procuring game and adding to my stock of provisions, to which up to this time we had avoided having recourse, induced me to get to the N.W. as far as possible, keeping on the eastern slope of the mountains. I accordingly passed from the South to the North Saskatchewan by the Pipe Stone Pass, which is further to the east than the Little Fork Pass, by which I crossed this transverse divide in the preceding summer. This pass follows up a small tributary to Bow River from the north, and after having traversed a height of land at an altitude of about 7,000 feet, descends what I name the Siffleur River to the north branch of the Saskatchewan at the Kootanie plain. Here I left my Indians, as they had by their hunting added 70 lbs. to my store of pemmican, and they were now likely, from the nature of the country I was about to traverse, to consume more than they would kill.

Altering my course to the S.W., I followed up the Saskatchewan to its source, and searched for a pass to the Columbia, of the existence of which I had been informed by the Indians.

Choosing the middle fork, I found it to rise in three branches, two of which are derived from immense glaciers, while the third is merely a small stream, issuing from a wide valley, the bottom of which is level and heavily wooded, and without any perceptible dividing ridge gives rise also to a branch of the Columbia flowing to the south.

This height of land is at an altitude of about 4,800 feet, and is in lat.  $51^{\circ} 46' N.$ , long.  $117^{\circ} 30' W.$  In reaching it the ascent is imperceptible, but the valley of the great fork is closely hemmed by lofty precipices, its whole width of about half a mile being occupied by shingle deposits, showing that during the floods the channel of the river must be of great breadth, and the valley almost impassable.

One of the glaciers in which this river rises is of magnificent dimensions, even exceeding those of the one at the Glacier Lake which was examined the preceding summer. It must be at least nine miles long and three wide, and descends from the same "mer de glace" that envelopes the higher portions of the mountains for a considerable way to the north.

On 7th September I commenced the descent to the Columbia by Blaeberfy River, a stream which rapidly increases in size, and descends about 2,000 feet through a very contracted valley in its course of about 35 miles. At various points we found traces of an old trail, which had evidently been out of use for many years, so that I have no doubt that this was the pass traversed by Howse in August 1810, as laid down in Mr. Arrowsmith's most recent map. It was at that time used as a portage route from the east to the west side of the mountains, but was abandoned in favour of the more northerly route by the boat encampment.

The difficulties of descending this valley are very great, arising from the density of the forest growth, and the contraction of the valley at various points by rocky barriers. We were occupied nine days in descending a distance of 35 miles to its mouth, which is in lat.  $51^{\circ} 26' N.$ , long. about  $117^{\circ} 50' W.$  Where it enters the valley of the Columbia River, Blaeberry River winds over immense flats of rounded shingle, testifying to the amount of material brought down from the mountains by the spring floods.

The Columbia at the point where we struck it is flowing to N.W. about 210 yards wide, and very sluggish and deep. Its valley is from three to four miles wide, and bounded by mountains, which to its right rise from 3,000 to 4,000 feet above its level, but on the left are about 1,000 feet lower.

A range of low hills occupy the centre of the valley, through which Blaeberry River passes in a deep rocky cañon before joining the main stream. It was now my wish to follow the Columbia River down to its great bend at the boat encampment, and thence following up the valley of Canoe River, endeavour to pass to the head waters of the Thompson's River, and so reach British Columbia. The valley of the river appears to be wide, and the mountains seem so open with rolling outline, that I did not anticipate any great difficulty in following such a course, if it had not been for the density of the forest. I spent some time in searching for any trace of a trail leading in the direction I desired to follow, but failed, as the Shooshewap Indians who inhabit this region of country travel solely by canoes, and keep the very few horses which they possess in the neighbourhood of the Upper Columbia Lakes.

I had only now provisions for 10 or 12 days, and many of my horses were much enfeebled by the long fast they had undergone in descending Blaeberry River, where there is little or nothing for them to eat, and having only one axe, I did not feel myself justified in attempting to follow a course by which, if I failed to penetrate, I should have to retrace my steps, probably with the loss of all my horses. We had also encountered several snow storms, warning us of the coming of winter; accordingly with great reluctance I turned to the south on the 18th of September and commenced following up the Columbia to its source, where I arrived on 3rd October.

This great valley through which the Columbia flows is one of the most singular features observed on the west slope of the Rocky Mountains. It is continued to the south from the Columbia Lakes by the valley through which the Kootanie River flows, and the famous wintering grounds in the Bitter Root Valley, to which the settlers flock from Colville and other places, is, without doubt, the continuation of the same great natural feature. It is the belief that this valley is continued to the north, following the course of Canoe River, that makes me so sanguine that by this route a passage could be effected into the valleys of either Thompson or Fraser's River. However, we know so little of the head waters of those rivers, that I think it would be premature to offer an opinion on this point.

As far south as lat.  $51^{\circ} N.$  I found great difficulty in traversing this valley, from the nature of the woods with which it is clothed, consisting of a forest growth of northern character. After passing a bend which occurs in that latitude however, the forest assumes almost suddenly a Californian aspect, free from underwood, and stretches of open prairie clothed with bunch grass, the prevailing tree being the *pinus ponderosa*; wher eafarther down the Columbia and to the north spruce firs predominate.

The Columbia River continues to be of large size to its source, as from the small inclination of the valley through which it flows, it preserves more the character of a sluggish canal than of a mountain stream. It winds through its valley bounded by a natural level, and including large swampy lakes in its bends.

From about the 51st parallel southward, however, the river becomes hemmed in by high banks, formed of beds of sand and shingle, which fill the valley, forming terraces of different levels, a phenomenon common to all the valleys further to the south which are contiguous to the Rocky Mount axis.

A narrow belt of open timbered land, only slightly elevated above the upper Columbia Lake, separates the source of the Columbia from the Kootanie River, a swift stream of large size flowing to the south. Before reaching this point the Kootanie River breaks through a rocky cañon, as was observed by Captain Palliser in his exploration of the preceding year, and it is at this point that it enters the great longitudinal valley, through which it flows to the south, forming the camping grounds of the Kootanie Indians.

Following down this river, which flows to the E.S.E., I reached the Kootanie Post on 7th October. From this place I followed the Hudson's Bay Company's trail along the Kootanie River, which dips as far south as  $48^{\circ} 25' N.$ , before it bends again to the north to meet the Columbia. Before reaching the Paddlers' Lake, where we left this river, we were obliged to swim it twice, a very severe trial to the horses so late in the season. From the Kootanie River we crossed to the Kullespelm Lake, and thence followed down Clark's Fork for about 20 miles. Here I happened to meet a Colville half-breed, who told me that the snow was lying so deep on the Kullespelm mountains that we should find a difficulty in crossing them. Accordingly I travelled to the south until I came to the Spokane River, by following down which I came on the Columbian waggon road, about 80 miles south of Colville. I arrived at this place on the 26th October, and joined you as you were preparing to start for Vancouver.

You have already informed Her Majesty's Government of my movements from that time until my arrival in Vancouver's Island on January 16th, 1860.

In the end of January I started for Nanaimo, travelling in a canoe with four Indians, and accompanied by Mr. Nind, of the local Colonial Office.

Nanaimo is situated about 70 miles up the coast, north-west of Victoria. It is from this place that the coal is procured which is already rendering Vancouver's Island of considerable mercantile importance in the San Francisco market. I had only a few days to spend in the examination of this very interesting district, but I saw enough to convince me of the value and considerable extent of this



coal deposit. This coal, which, however, is more properly speaking a lignite, is about 10 per cent. less valuable than the true coal of the carboniferous epoch. It is worked at Nanaimo by the Hudson's Bay Company, the miners being principally Staffordshire men, but the under hands chiefly Indians. The coal is worked from two seams, the lowermost of which is six feet thick, while the upper is from  $3\frac{1}{2}$  to 4 feet. It is associated with grits and shales, and the whole group is probably of cretaceous age. The fossils which I have collected have not yet arrived in England, but they will be sufficient to determine this point with great exactitude. Mr. Nichol, the gentleman in charge, with the approval of Mr. Dallas, on behalf of the Hudson's Bay Company, afforded me every facility in the examination of the mines and the surrounding country, allowing me to have access to the different maps and documents connected with the mines under his charge. In the course of another trip from Victoria up Fraser's River, I learned some further details concerning this interesting group of coal-bearing strata of the Pacific coast, and which information, together with observations made in California, will be combined in the general report of the geology of the expedition to be submitted through you to Her Majesty's Government as soon as it is prepared.

Captain Palliser,  
Exploring Expedition.

I have, &c.  
(Signed) JAMES HECTOR, M.D., Edin.

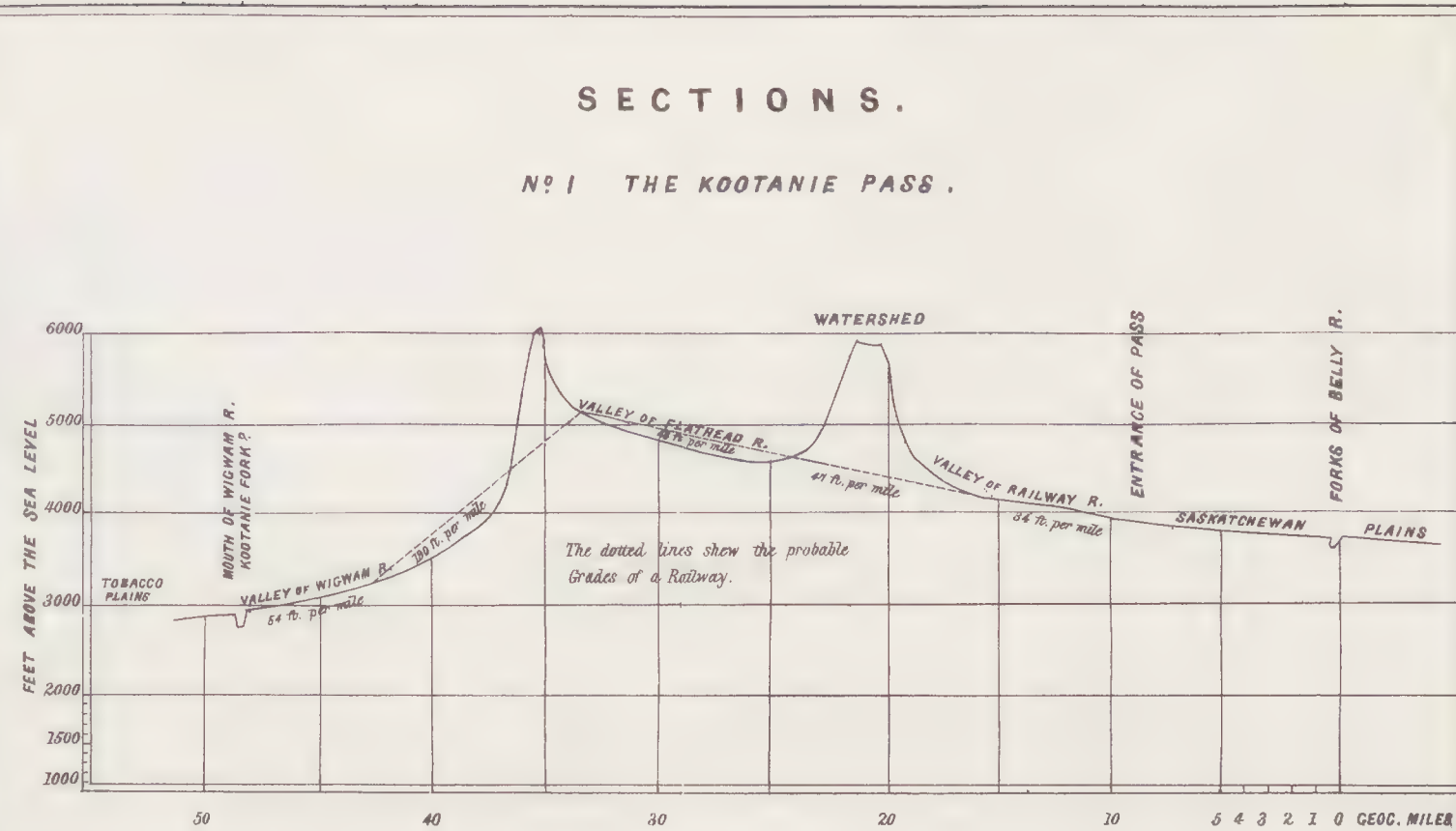
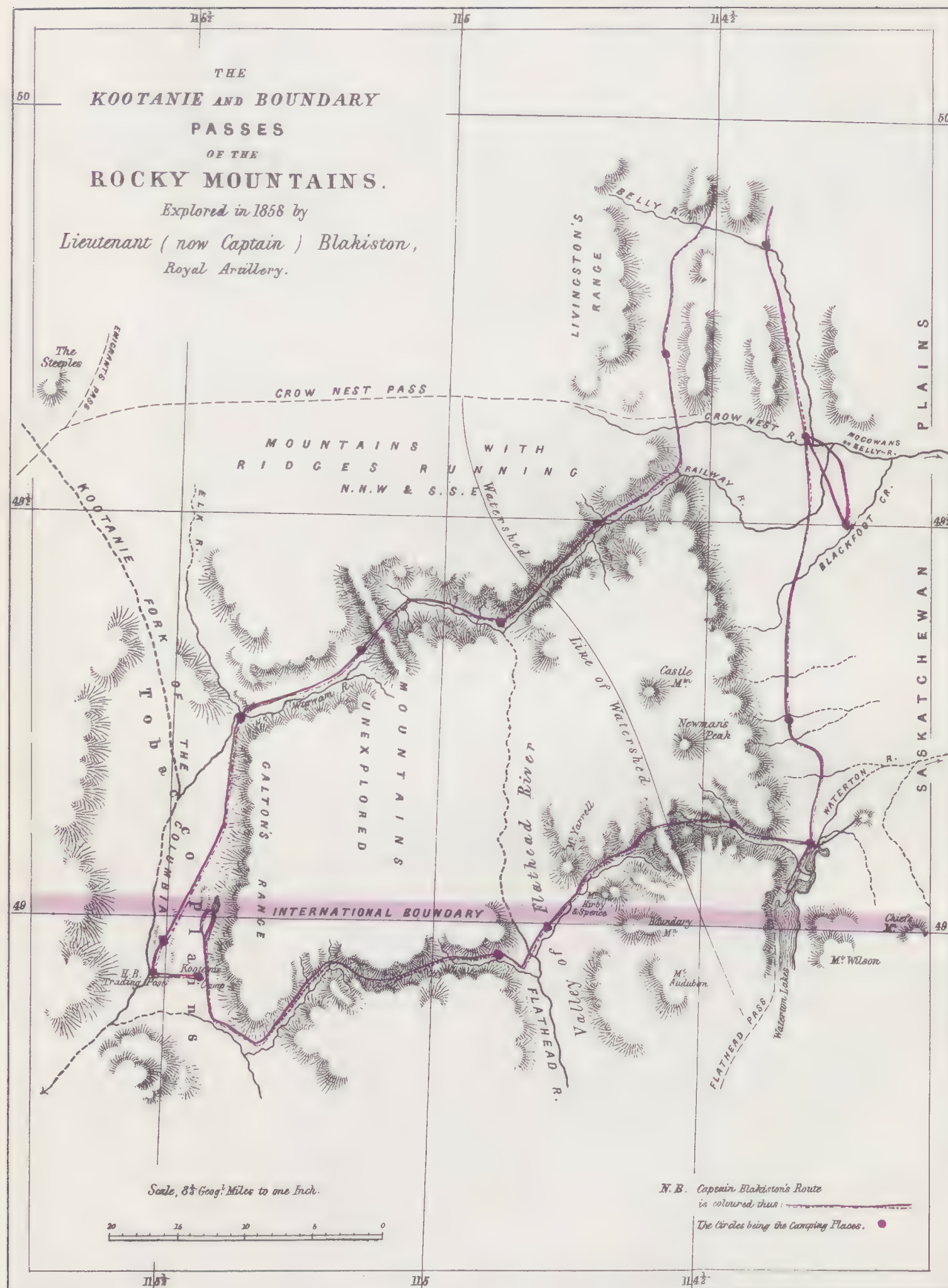
# ASTRONOMICAL OBSERVATIONS, 1858-9.—Dr. HECTOR.

Longitude, approximate. Latitude, diurnal only.

Date.	Place.	Longitude.	Latitude.
		W.	N.
1858.		° ' "	° ' "
November 29 -	North side of Battle River - - - -	113 35	52 46 26
December 1 -	Red Deer River - - - -	113 40	52 18 13
" 2 -	" " opposite Antler - - - -	113 50	52 12 36
" 4 -	" " above Forks - - - -	114 30	52 1 26
" 6 -	" " - - - -	115 0	51 50 28
" 9 -	Little Red Deer River - - - -	114 53	51 29 28
" 10 -	Source of Little Red Deer River - - - -	115 3	51 21 40
" 11 -	Dead Man's River - - - -	115 16	51 14 3
" 15 -	Indian Camp Edge Co. - - - -	114 36	51 25 24
1859.			
January 15 -	Thickwoods, between Pembina River and Paddle River	114 18	54 12 1
" 17 -	Fort Assineboine - - - -	114 48	54 31 4
" 23 -	Athabasca River - - - -	115 40	54 19 36
" 25 -	" " - - - -	116 49	54 12 24
" 29 -	Below Dead Man's Rapid - - - -	117 18	53 50 51
February 2 -	Jasper House - - - -	118 10	53 12 21
" 8 -	" " - - - -	118 10	53 12 5
" 12 -	Maligne River - - - -	118 12	52 55 50
" 13 -	Forks of Athabasca and Whirlpool River, trail to Boat Encampment - - - -	118 6	52 46 54
August 8 -	South of Bow River - - - -	112 46	50 13 5
" 9 -	Small Lake - - - -	113 6	50 23 39
" 12 -	Mouth, Ispasquehon River - - - -	113 58	50 43 8
" 16 -	South of Bow River - - - -	115 7	51 8 20
" 23 -	Ten miles above Vermillion - - - -	116 16	51 19 0
" 24 -	Opposite Observation Point - - - -	116 20	51 22 29
" 26 -	Height of land, Pipe River - - - -	116 24	51 38 1
" 30 -	R. bank of North Branch - - - -	116 50	51 58 3
September 6 -	Great Glacier - - - -	117 30	51 46 33
" 8 -	Blaeberry River - - - -	117 25	51 40 49
" 10 -	Right side valley, Blaeberry River - - - -	117 30	51 36 39
" 11 -	Blaeberry River - - - -	117 35	51 34 3
" 15 -	" " - - - -	117 35	51 30 3
" 17 -	Mouth, Blaeberry River - - - -	117 50	51 25 50
" 22 -	Columbia River - - - -	117 30	51 14 49
" 23 -	" " - - - -	117 20	51 9 5
" 25 -	" " - - - -	117 0	51 3 55
" 30 -	" " - - - -	116 40	50 47 3
October 1 -	Lower Columbia Lake - - - -	116 26	50 29 33
" 2 -	Source of Columbia - - - -	116 16	50 7 41
" 3 -	Kootanie River - - - -	115 50	49 50 24
" 5 -	" " - - - -	115 35	49 36 18
" 6 -	" " - - - -	115 20	49 23 42
" 8 -	Kootanie Post - - - -	115 10	48 54 48
" 10 -	Kootanie River - - - -	115 5	48 40 28
" 12 -	" " - - - -	115 10	—
" 13 -	Second transverse valley - - - -	115 20	48 30 34
" 13 -	Kootanie River, third transverse valley - - - -	115 30	48 25 23

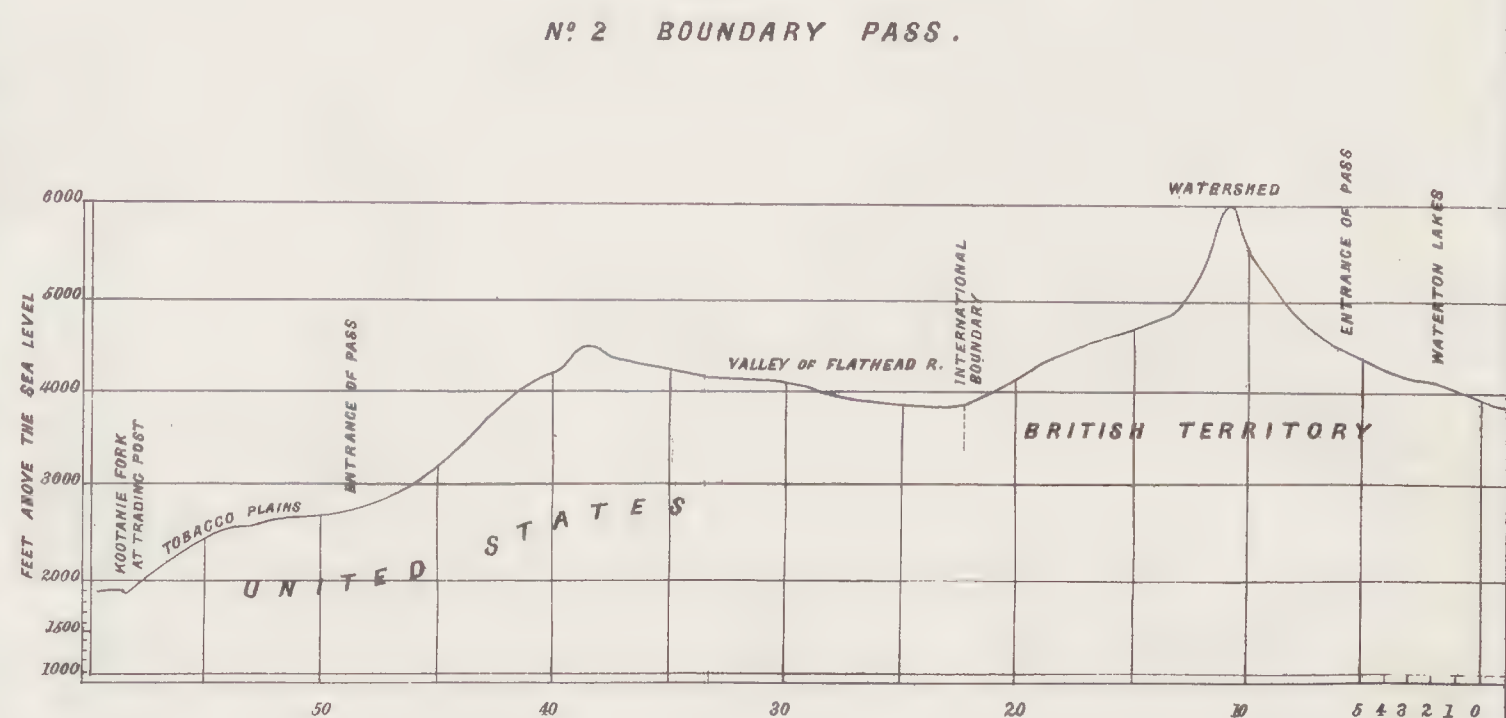
The longitudes given are those used in calculating the latitudes merely.—J. H.

JAMES HECTOR, M. D., Edin.



Horizontal Scale  $8\frac{1}{2}$  Geog. Miles to an Inch.

Vertical Scale 2000 feet to an Inch.





No. 5.

No 5.

EXTRACT of a LETTER from Captain BLAKISTON, R.A., to C. FORTESCUE, Esq., M.P.

SIR,

Woolwich October 24, 1859.

In accordance with the directions of his Grace the Duke of Newcastle, contained in your letter dated Downing Street, 22d July 1859, I have the honour herewith to enclose a report, drawn up from information collected whilst attached to Captain Palliser's expedition as Magnetic Observer, and also, after separating from that expedition, in carrying out my original instructions.

I have, &amp;c.

C. Fortescue, Esq., M.P.  
&c. &c.

(Signed) THOMAS BLAKISTON,  
Captain, Royal Artillery.

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## REPORT.

Enclosure 1 in No. 5.

Encl. 1 in  
No. 5.

### INTRODUCTION.

*British North America.*—The prevailing ignorance in the United Kingdom of North America generally, but more especially of the British possessions on that continent, is such, that all the different provinces and territories are usually included in the term "Canada." Now, on looking at a map it will be seen that Canada is but a comparatively small portion of British North America, which extensive region, stretching from the Atlantic to the Pacific, and touching the United States in the great lakes and forty-ninth parallel, is limited to the north only by the Frozen Ocean, and rivals in size the remainder of this northern continent. Included in this are several thriving provinces, all under regular governments, and more or less peopled, but there is still the greater portion remaining as "Indian territory."

*The Interior.*—This, then, which until lately has excited little attention, except to those interested in the fur trade or Arctic exploration, is the country to which this report specially refers, and for want of a name must for the present be called "the Interior." And when we take into consideration that the extent in latitude of this tract is as great as from the almost tropical Gulf of Mexico to the most northern confines of the American Union, where the winters are nearly Arctic, we must expect to find it likewise varying very greatly in respect to climate, soil, and natural productions. Hence the greater part of the apparently contradictory evidence produced before the Select Committee of the House of Commons on the Hudson's Bay question in 1857 is to be attributed to the fact that the country over which that Company had control is of so great an extent, that a statement concerning the natural productions, fitness for agriculture, or anything which climate or physical nature would influence, can only be taken as referring to that particular part and not to the whole country. For example: a statement that good wheat grows in Rupert's Land does not prove that this grain can be produced over the whole country, of which the waters find their way into Hudson's Bay; nor can the fact that domestic cattle thrive in the Hudson's Bay Company's territories induce us to believe that stock farming (notwithstanding that we have evidence that on the banks of Back's Great Fish River there is some of "the finest grazing country in the world") would be a profitable undertaking on the shores of the Arctic Ocean, so that in the following "Report on the Interior of British North America," it has been my endeavour to bring each part forward in its true light as far as possible from reliable information and my own observations. I will therefore enumerate the different sources from which a knowledge of the interior has been gained.

*Sources of Information.*—During two centuries the fur trade has been gradually extending itself into the interior from three principal points—Hudson's Bay, Canada, and the Pacific; and so lucrative has the trade been, and such competition was there for some years between rival Companies, that the country has been traversed in almost every direction, and the routes taken being usually water (in most countries the primitive means of communication), the mapping of it in a geographical point of view has been generally very thoroughly carried out. Since the times of Hearne and Mackenzie, the Companies engaged in the fur trade have at different times employed men of considerable qualifications as astronomical surveyors, among whom may be mentioned the late Mr. David Thompson, Fidler, and Taylor, besides which the Hudson's Bay Company has itself fitted out Arctic expeditions, which have been ably carried out by Dease and Simpson, Dr. Rae, Messrs. Anderson and Stewart; and, moreover, Howse, known as the author of the Cree Grammar, made considerable explorations in the

Rocky Mountains in 1809–10–11, while in that service. Other travellers have passed through the country entirely by the means provided by the fur trade, among whom may be mentioned Sir George Simpson, Governor of the territories of the Hudson's Bay Company, Colonel Lefroy, Royal Artillery, David Douglas, and Mr. Drummond, both botanists, Captain Warre, and Mr. Paul Kane, whose interesting work, "The Wanderings of an Artist," has served to throw much light on the mode of life in the interior. Again, Arctic America and the regions of Lakes Superior, Winipeg, and the Lower Saskatchewan have been surveyed by the several Government expeditions under Franklin, Back, and Richardson; besides which the International Commissioners ran the line of boundary in 1825 along the old canoe route as far as the Lake of the Woods.

*Lake Explorations.*—All this had been done, and several sportsmen and others had penetrated into the country of the Saskatchewan previous to 1857, when, at the recommendation of the Royal Geographical Society, an expedition was decided upon by Her Majesty's Government for the purpose of exploring the country between Lake Superior and the Rocky Mountains, together with the passes to the west side. This expedition, under the direction of Captain Palliser, left England in the spring of 1857, and the several reports of its progress, up to the winter of 1858 and 1859, will be found in the Parliamentary papers dated June 1859.

During the same season (1857), the Canadian Government having granted a sum of money for the purpose, an expedition was despatched from Canada for the purpose of surveying the canoe route between Lake Superior and Red River Settlement, with a staff of scientific gentlemen and their assistants, the whole under the superintendence of Mr. Gladman. The work, I believe, was accomplished satisfactorily, the results of which, together with explorations of Manitoba and Winnipegosis Lakes, the Assiniboine River, part of the south branch and Lower Saskatchewan, as well as a careful survey of the settlement on Red River, were carried out by Messrs. Dawson and Hind during that and the following year. An account of these expeditions is to be found in another blue book, ("Explorations of the Country between Lake Superior and Red River Settlement,") also dated June 1859. Moreover, during the summer of 1857, a company of Royal Canadian Rifles proceeded from Montreal by ship to Hudson's Bay, and thence by the usual inland navigation to Red River Settlement, and reports having been called for from each officer of that detachment, the Commander of the Forces in British North America is doubtless in possession of some valuable information concerning that route.

#### CAPTAIN BLAKISTON'S PROCEEDINGS.

This being the first opportunity I have had of making any report direct to Her Majesty's Government, I shall now give as brief a statement of my proceedings as is consistent with clearness, omitting all observations of places or things the results of which have been embodied in the following report, and equally those matters of personal interest or slight importance which would only be introduced to enliven the dull monotony of a narrative.

*Appointment.*—Having been attached at the recommendation of the Royal Society to the exploring expedition under Captain Palliser for the purpose of prosecuting the required magnetic researches and assisting in the geographical objects of the expedition, I received instructions, drawn up by a Committee of that Society and sanctioned by the Colonial Department, concerning the magnetic desiderata which it might be in my power to supply. On the 21st of June 1857, I sailed out of the Thames on board the Hudson's Bay Company's ship "Prince of Wales," and after a seven weeks' voyage, the latter part of which, namely in Hudson's Straits and Bay, was mostly through ice, we reached York Factory, the seaport of Rupert's Land, at the mouth of Hayes River.

On landing I was engaged every day for upwards of a week in magnetic observations, the results of which have been discussed by Major-General Sabine, Royal Artillery (see "Remarks on the Magnetic Observations transmitted from York Fort on Hudson's Bay in August 1857."—Proceedings of Royal Society, 7th of January 1858). The Hudson's Bay Company fort containing the only dwellings at this desolate place, I, in common with some missionaries and other passengers, shared the hospitality so readily afforded, and it is but justice to say that while living at any of this Company's establishments no charge was ever made, and the gentlemen of the service seemed anxious to rival one another in good offices towards a stranger.

*Start for the Interior.*—Having been supplied with the necessary equipments and provisions, on the 31st August I left York Factory, having a passage provided in one of a brigade of six boats which was proceeding to the interior. An account of this voyage (Appendix I.) having appeared in the Parliamentary papers on Captain Palliser's expedition, I need say no more than that after travelling 400 miles, in which distance 35 portages were made and one house only seen, on the 20th September we arrived at Norway House, a post of the Hudson's Bay Company, situated near the north end of Lake Winipeg. Here, the brigade with which I was travelling being bound for Red River, my traps were turned over to another boat, which being manned by "green hands," was to proceed up the Saskatchewan as the "fall boat" in charge of an experienced steersman. I remained on shore for two nights, and the day intervening being taken up in magnetic determinations from sunrise to sunset, I was unable to visit the Indian settlement of Rossville, under the auspices of the Wesleyan Missionary Society, situated on Play Green Lake at a short distance.

*Lake Winipeg.*—Starting with our single boat on the 22d, we camped a few miles short of the



entrance to Lake Winipeg. The following day, getting a fair wind, we ran across the greater part of the north end of the lake, but were forced to put ashore at the "Three Islands" on account of the heaviness of the sea. We were, moreover, disturbed during the night by the rising of the water, caused, no doubt, by the strong southerly wind heaping it up to this end of the lake, which obliged the men to divest the boat of her cargo and haul her up in the dark, a feat accomplished rather roughly. Luckily none of my magnetic instruments, which before leaving England I had taken particular care to secure in the boxes by strips of india-rubber, suffered any damage; but the breakage of two mountain barometers, which could only be carried loose in the stern sheets, I attribute to this shaking. Managing to get under weigh about noon the day following, we crossed the remainder of the lake, and camped near the foot of the "Grand Rapid," just inside the mouth of the Saskatchewan.

*Grand Rapid.*—By the evening of the next day we had succeeded in getting boat and cargo to the upper end of the Rapid, which was accomplished in the usual way by hauling the boat by a line up the lower part to the "carrying place," thence transporting the "pieces" (cargo) over the mile portage and towing the boat by a rope up the Rapid under the cliffs along the south side.

*Saskatchewan River.*—Some rapids which are shoal at this season of the year occur at either end of Cross Lake; after which Cedar Lake is reached. From this we continued up the Saskatchewan, the country on either side of which is so little elevated above the river that it is possible to pass in almost in any direction in canoe.

Having passed "the Pas" Mission we arrived at Cumberland House, situated on Pine Island Lake, on the 4th of October, where, after enjoying a Sunday of the most lovely "Indian summer" weather, I was comfortably put up for the night, and we proceeded on our upward voyage the following day. The country becoming gradually of greater elevation and the river banks consequently higher, we arrived at "Fort à la Corne," 15 miles below "the Forks," on the 15th October, where finding another boat on the point of starting for up river, we made our way in company until the 23d of October, when we reached Fort Carlton, the winter quarters of the expedition. Ice was already forming along the shore, and it being thought that the boat would not reach the next fort above before the closing of the river, the men with whom I had travelled, mostly Norwegians, who were bound for the upper posts, were despatched overland. I was received by Mr. Hardisty, the gentleman in charge, and was installed into comfortable quarters, after a fifty-three days' boat voyage.

*Arrival at Winter Quarters.*—Here I found M. Bourgeau, the amiable and hard working botanist of the expedition, the other gentleman being off on excursions into the country. Captain Palliser had left sometime previous on his return to Red River, en route for the United States; and I was somewhat surprised at finding neither letter nor even message from him. My position on the expedition was not defined; I had work to be done in which assistance was required, and yet no authority to procure it.

I need hardly say that my position was by no means enviable, but I at once decided to carry out my special instructions and interfere in no matters concerning the expedition. This course I followed without deviation, and although in doing so I may have caused myself to be looked upon by some as an unwelcome addition to the expedition, yet I have the satisfaction of knowing that in making all private feeling succumb to the requirements of duty, I have carried out that which possibly others more yielding might have failed to accomplish.

*Hourly Observations.*—On the arrival of Dr. Hector and Mr. Sullivan I showed them and M. Bourgeau my instructions, in which, referring to hourly observations made on the Arctic coast in 1853 and 1854, this clause occurs: "It is hoped that, with the aid of some of his colleagues on the expedition, Lieutenant Blakiston may be able to accomplish similar observations at the winter station of at least three or four months' continuance." They immediately expressed their desire to aid in the work; I therefore applied to the gentleman in charge, and the construction of a rough observatory was commenced without delay.

Until the completion of this the greater part of my time was occupied in making the out-door observations, to which the approaching cold weather would put a stop; when, having fixed the instruments, gone through the necessary adjustments, and everything being ready, on the 12th November was commenced a series of hourly observations of the changes of the magnetic declination, the temperature of the air, and state of the weather, together with six-hourly readings of the barometer and hygrometer; besides the daily self-registering thermometers; M. Bourgeau at the same time taking the temperature of the ground at the depths of two and three feet daily, which he conducted with uninterrupted regularity.

The hourly series was carried on by a system of watches, each relief during the day being six and at night four hours, the observations being made at the exact minute of time according to a chronometer, which I kept regulated by astronomical observations. For the first month the work was by no means pressing, as four observers took their regular turns; but Dr. Hector leaving at this time, the duty was carried on for the next two months by three of us. Unluckily it was a winter of rather "hard times" at Carlton, and in February the fort becoming much reduced in provisions, nearly all the families were sent off to the plains to shift for themselves near the buffalo, and at the same time Mr. Sullivan, accompanied by the expedition cook, left for another post of the Hudson's Bay Company. Thus reduced to two, I consulted with M. Bourgeau, who immediately expressed his willingness to devote himself to the work as long as I thought proper for the good of science. For

two months, consequently, were the observations carried on by M. Bourgeau and myself, the instruments being registered every hour, day and night, and it was not until five months were completed, and the spring botanical collecting commenced, that I brought the series to a close.

*Credit due to the Observers.*—Considering that the use of the magnetic instrument employed was entirely new to the observers, I cannot but say that the greater part of the observations were made in a manner most creditable to themselves, and on the completion I addressed a letter to Captain Palliser, which was delivered to him on his arrival from the United States, but which not appearing in the Parliamentary papers, I here insert a copy.

"SIR,

"Fort Carlton, Saskatchewan River, April 16, 1858.

"A series of hourly magnetic and meteorological observations continued uninterruptedly night and day for five months, having been this day brought to successful termination, I have the honour to express my thanks for the co-operation of the members of the expedition under your command, who, on my arrival here in your absence, voluntarily undertook the work which I had no power to command. I would more particularly mention, for the information of Her Majesty's Government, the untiring zeal manifested by M. Bourgeau during the whole period, but especially for the last two months, when he devoted himself to the somewhat arduous undertaking of sharing the watches with only myself, so as to carry on the series without omitting any of the hours of the day or night.

"I have, &c.

(Signed) "THOMAS BLAKISTON,  
Lieutenant, Royal Artillery.

"John Palliser, Esq.,

"Commanding Exploring Expedition, &."

I also wrote to Major-General Sabine, especially mentioning M. Bourgeau, to whom science is so greatly indebted, that had it not been for him this important series of observations could never have been accomplished; and I do hope, that taking into consideration the most complete botanical collection which has been made by that gentleman, Her Majesty's Government will be induced to add a bonus to the scanty allowance which he has received for each season's work.

*Magnetic Observations.*—The five months' hourly magnetic observations above mentioned have been discussed by General Sabine in the volume concerning magnetic observations and surveys now in the press; but having at the same time made determinations of the magnetic elements at regular intervals during the course of the winter and spring, I should here observe that the results of all my magnetic observations, from Hudson's Bay to the Rocky Mountains, will appear in a complete account which I have been requested to draw up for the Royal Society, after the arrival of the instruments and their verification at the original base station "Kew."

*Meteorological Observations.*—I have before said the meteorological observations were included in the hourly series; but that terminating on 16th April, they were afterwards kept up three times a day until the expedition left its winter quarters in the middle of June; I, however, left a thermometer, which was registered by the gentleman in charge and those under him, during summer and autumn while I was absent; and on my leaving Carlton for good in December 1858, I still left it there, and have now received another six months' observations. The climate, therefore, of this station is likely to be well determined.

*Astronomical Observations.*—Astronomical observations were made by Mr. Sullivan and myself during the winter and spring for the correct determination of the geographical position of Fort Carlton, and their agreements are as near as can be expected, the latitude being the same, namely, 52° 52' 5" north, and the longitude, deduced from lunar distances,—

Sullivan - - - 106° 15' 3" west (mean of three).

Blakiston - - - 106° 23' 8" „ „ seven).

*Proceedings, Summer of 1858.*—I need say little concerning the proceedings of the expedition during the summer of 1858, which have been described by Captain Palliser (see Parliamentary papers), it is sufficient for me to mention that while carrying out his orders, I made magnetic determinations at required stations, and carefully mapped the country through which I passed, and having rejoined the expedition near "Cache Camp" to the south of the Red Deer River, we proceeded to the south-east over prairie until buffalo were found at what I called "Slaughter Camp." Here a council was held, and Captain Palliser decided on what part of the explorations of the mountains was to be undertaken by each individual, and which he has detailed in his report, but with the error that he has stated, "Lieutenant Blakiston to proceed through the mountains by the two known Kootanie passes, returning by the southern one;" whereas the fact is, the information of the half-breed who was consulted on this part of the mountains was, in his own words, "Ils y en a plusieurs des places on les Kootonaies sont accoutumes de faire le travers." At the same he said that he had only crossed by one of these, which was that generally used, and among the natives known by the name of "the Kootmay pass." This known pass, therefore, Captain Palliser desired me to survey, and determine whether it was wholly in British territory; if it proved not to be so, he left it to myself to endeavour or not, as I chose, to search for another north of it.

*Proposition to explore rejected.*—At this council, which was held on the 2d August, I proposed that two men should be left at the site of Bow Fort on Bow River (at which point the parties were to separate), for the purpose of constructing a canoe, in which, after returning from the mountains (having calculated the time required), I proposed to descend Bow River and the south branch to



the Forks of the Saskatchewan, thereby getting a knowledge of the whole length of the river and the country through which it flows. This proposition seemed to be favourably entertained at the time, but on the following morning I was informed that it was an unknown river; I need only further say that it is still equally unknown.

*Separation from Exploring Expedition.*—I was, moreover, told (after having at last demanded to know my position in the expedition), that I was to consider myself under the order of another member; immediately after making which declaration, Captain Palliser rode off on an exploration to the southward, and I accompanied the remainder of the expedition to the "site of Bow Fort," where, after mature deliberation, I wrote a letter (see Parliamentary Paper, June 1859) which I left for Captain Palliser, wherein I threw off his command; but in order that the objects of the expedition should not be frustrated, I proceeded with the exploration which I had previously undertaken, which will be found detailed in a "Report on the Exploration of the Kootonay and Boundary Passes of the Rocky Mountains in 1858." This, although in the possession of the Colonial Department, I have attached as an appendix (Appendix II.) for the sake of reference. As to the statement of Captain Palliser with respect to the Kootonay Pass in his report (see Parliamentary Papers, June 1859) of which the words are "Lieutenant Blakiston's exploration may, perhaps, have a value hereafter as a corroboration of my own," I have only to say that unfortunately in his map or description I am unable to recognize, except in its general position, the "Kootonay Pass," which I had previously taken so much pains accurately to lay down; and the tone of that statement leaves me under the impression that it was, perhaps, made but half-intentionally in the haste of writing. It may possibly be some explanation of the course taken by Captain Palliser, that previous to my separation from him, on 11th August 1858, I had been altogether but fourteen days in his company since the expedition left England in May 1857; and before that we had met so few times that whatever Captain Palliser knows of me must be from report.

*Return to England.*—The appendix above referred to and a letter which reached the Colonial Office contain my proceedings till arriving at Carlton at the end of October 1858. Subsequently I travelled during the winter, walking in snow shoes driving a train of dogs, a distance of 800 miles, arriving at Red River Settlement on the 1st of March 1859. Here I remained until I received Sir E. B. Lytton's reply to my offer to prosecute further exploration or magnetic survey, after which I took the earliest opportunity on the breaking up of the winter of proceeding by the overland route to Saint Paul on the upper Mississippi, distant 530 miles from Red River Settlement; after this my travelling was through civilized parts.

#### CONTENTS OF REPORT.

It is not without some degree of hesitation that I now offer this Report, which notwithstanding the labour bestowed upon it, must necessarily be very imperfect. It will, moreover, I feel sure fail to give that correct conception of the state of things that actually exists, which it has been my endeavour to pourtray; but such as it is, I have arranged as follows:—

##### *Report.*—Section A. Physical features.

- " Natural productions and climate.
- " B. Inhabitants, present state, missions, &c.
- " C. Development of resources.
- " D. Future government and colonization.

##### *Appendix.*—Appendix I. "Report on the route between Hudson's Bay and Lake Winnipeg."

- " II. "Report on the exploration of the Kootonay and Boundary Passes of the Rocky Mountains in 1858."

#### SECTION A.—I.

##### PHYSICAL FEATURES.

*General Features, North America.*—The continent of North America is divided into several great basins, determined by the general slopes of the surface and consequent direction of the flow of its waters, of which the British or northern portion comprises almost the whole of that drained to the north and north-east, as well as a part of the western or Pacific slope. Besides these water systems, the great features which influence the climate and the progress of civilization are, first, a continuous chain of mountains running through the whole length of the continent, dividing it laterally into two distinct portions,—the warm chaldron of the Gulf of Mexico to the south, with a counter-balancing reservoir of ice penetrating deeply into the northern part of the continent; and lastly, those extensive inland sheets of fresh water commonly called "The Great Lakes." In an extra-tropical continent thus formed, it would be natural to expect a very varied climate, and such being actually the case, we find consequently in a comparatively short distance great diversity in the habits and occupations of the inhabitants.

*The Interior.*—As this report purports to treat only of the interior of British North America, I shall confine myself to a general sketch of the physical features of that country, which, to speak generally, may be thus divided:—

1. The northern or Arctic basin. 2. Hudson's Bay. 3. The Central Plains. 4. The Rocky Mountains. 5. The Pacific slope; and if Canada were included it would be a sixth, the St. Lawrence basin. They are all so distinctly marked that their names at once almost define them. Again, looking at the country from a geological point of view, the first point that must strike the attention is that at an average distance of 100 or 150 geographical miles from the south and west shores of Hudson's Bay commences a district of primitive formation, and which, when defined on a map, appears as a great belt or band of from 150 to 200 miles in width, coming from the northern part of Canada east, skirting the upper Great Lakes, curving round to Lake Winnipeg, and thence taking a north-easterly direction, reaching the Arctic Sea in the region between the Coppermine and Back's Great Fish River. In this granite axis, as it should perhaps be called, but mostly on its western edge, lie the principal lakes of the interior, commencing with Winnipeg, whose eastern and western shores, approaching within two miles of one another, exhibit on the one hand secondary, and on the other primary rock. Deer Lake, Athabasca, Slave, and Great Bear Lakes carry on the connexion to the Arctic Sea, where Coronation Gulf occurs. It is a peculiarity of this belt that no rivers run interruptedly through it, and the water is so dammed up that the whole country is intersected with numberless lakes. It is almost needless to say that this tract is extremely rocky. The geological nature of the country intervening between this barrier and Hudson's Bay is favourable, but the influence of that icy sea on the climate is such that we must class the whole of that region as most inhospitable.

*Central Plains.*—Beyond this primary belt, and limited on the west by the chain of the Rocky Mountains, is an extensive region of secondary formation, through the northern part of which flows the Mackenzie, the greater part of the valley of which river, from its Arctic situation, being unfit for pasturage and worthless for agricultural purposes, there only remains the country between Lake Winnipeg, the Rocky Mountains, and forty-ninth parallel, to which we can look as affording soil and climate adapted for settlement by a civilized community; and it is to this area, including also that portion between the western boundary of Canada and Lake Winnipeg, to which in this Report I would most particularly draw attention. It is this district, I may observe, which fills the gap between Canada and British Columbia, and may before long be required to complete the chain of dependencies of the British Crown, stretching from the Atlantic to the Pacific.

Many would divide the central plains which occupy the greater part of the country just mentioned, and are but the northward extension of the high plateau in the territory of the United States west of the Mississippi, between the Arctic basin and that of Hudson's Bay, because of the rivers which flow through them ultimately find their way to the north and north-east. I cannot, however, do this; but must consider the great central plains as a distinct district, having the general form of a triangle, of which the 49th parallel (international boundary), from the Rocky Mountains to the Lake of the Woods, forms the base, while the apex is to the north of Peace River, near latitude 60°. This is also in accordance with the views of Sir Alexander Mackenzie, the greatest North American traveller at the

*Climatic Divisions.* end of the last century, and who, in speaking of the tract usually called the "barren grounds" gives as its southern limit a line "from Churchill (Hudson's Bay) along the north border of Deer Lake to the north of the Lake of the Hills (Lake Athabasca) and Slave Lake, and along the north side of the latter to the Rocky Mountains, which terminate in the North Sea, latitude 70° north, and longitude 135° west, in the whole extent of which no trees are visible, except a few stunted ones scattered along its rivers, and with scarce anything of surface which can be called earth; yet this inhospitable region is inhabited by a people who are accustomed to the life it requires," and which has been so distinctly confirmed by later travellers. In connexion with this subject is the "limit of perpetually frozen ground," north of which the subsoil never thaws; its general direction is much the same as that of the "barren grounds," but considerably to the southward, namely, from the southern extremity of Hudson's Bay, touching the north end of Lake Winnipeg, and thence taking a north-westerly direction. These climatic lines have been marked on the map No. 1.

*Arctic Regions.*—To despatch in a few words the north and north-eastern portion, properly called the Arctic Regions, we see that the greater part is included in the "barren grounds," and besides the Mackenzie is drained by Back's Great Fish River and the Coppermine, both flowing into the Arctic Sea; the more southern and western part of the country is however wooded, as is, I believe, the whole length of that noble stream, the Mackenzie, except at its most northern parts. The climate is cold in the extreme, and a considerable portion of the country is within the Arctic Circle. The inhabitants are Esquimaux, Chipweyans, and some Crees in the south. The trading establishments are kept up on deer, meat, and fish, with potatoes and barley, which are grown at some posts. The supplies and returns of the fur trade are annually transported in boats, but there not being time for those belonging to Mackenzie's River to go to and return from Lake Winnipeg, cargoes are exchanged at "Portage la Loche," between the English and Athabasca rivers, in latitude 56° north, with a brigade sent from the dépôt.

*Hudson's Bay.*—Again, the region around Hudson's Bay is generally of much the same character as the wooded portion of the Arctic regions, but owing to the formation of the country, causing so many rocky obstructions in the rivers, the extent to which the country is in many parts submerged is almost incredible, except to one who has witnessed it. Few of the rivers, of which there are many, are navigable for anything larger than boats, and it is with the greatest difficulty that even these are got through many parts (see Appendix I.)



The timber is small and stunted, particularly in the vicinity of the bay.

Of course, James' Bay being the most southern, is the most salubrious portion of this great inland sea, but as I have no personal knowledge of that part, I take the information gained from persons who have lived there.

In this district, on the shore of Hudson's Bay at the mouth of Hayes and Nelson rivers, is York Factory, the great depôt of the Hudson's Bay Company for the inland trade.

There is a road outside, which is, however, much exposed, but a safe anchorage exists inside the mouth of the former river for a limited number of vessels, not drawing more than 15 feet (the depth of water in the bar), and I have little doubt that a harbour for vessels of large size would be found in the mouth of Nelson River, which being the outlet of the Saskatchewan and other rivers of the interior, is of large size. There is also another post on the west side of the bay, but more to the north, at the mouth of English River. This is Fort Churchill, a place of importance in the early days of the fur trade.

The depôt for the southern department, which a vessel of about 500 tons annually visits, is Moose Factory, at the southern extremity of James' Bay, of the country around which I am ignorant, but being directly north of and not far removed from the confines of Canada, matters little with regard to the interior.

Numerous trading posts are scattered throughout this thickly wooded region, but with no other object than the prosecution of the fur trade.

#### WINIPEG.

*Winipeg.*—In referring to this remaining district, I have as yet only spoken of it as the Central Plains, without reference to its rivers, lakes, or mountains.

This district contains about 380,000 square miles, or extending in latitude  $7^{\circ}$ , with a general width of 750 miles, is as large as France and Spain together, and is the portion of country which, unnamed at present, I have preferred to call after its principal lake "Winipeg." The word is Cree Indian, and as with most of their names, is descriptive of the lake "Muddy water." This being the part of the interior likely to be of use for civilization, and being that with which I am most acquainted, I propose to treat of it somewhat in detail.

Between the valley of the Mississippi and the Rocky Mountains is a large extent of elevated and level country which is now generally called the "High Central Plains." These plains extending into British territory, constitute the country of which we have now to speak. Leaving the primary formation on the east shore of Lake Winipeg, a secondary limestone is visible along the entire western shore, and on the Red River, and this must extend westward, but very little is seen of it owing to the mass of "drift" which covers the country as far as the mountains, which consequently is the geological nature of these plains, which extend without break from Lake Winipeg and the Red River to the Rocky Mountains, being at their eastern extremity a little over 600, and rising by successive steps until at the base of the mountains they have an altitude of 4,000 feet above the sea.

Speaking generally, the nature of the soil of these plains is sandy, and almost the entire southern portion is prairie, trees only occurring in the river bottoms. But north of a line from the south end of Manitoba Lake, running towards the forks of the Saskatchewan, and following the north branch to longitude  $111^{\circ}$  west, and after this sweeping south-west to the Rocky Mountains, the country is generally partially and in parts thickly wooded, small aspen being the common tree, but in the more southern portion the oak and elm flourish, while the spruce and pine are only found in patches except towards the north. There is usually a good depth of soil in the wooded portions and on those prairies which have originally been forest land.

The extent of this kind of country northward I am unable exactly to define, but the region to the north of the Saskatchewan is not, as has been stated, altogether thick forests, for there are prairies on Peace River in latitude  $56^{\circ}$  north, so that we may presume that the partially wooded country, except at the base of the Rocky Mountains, has considerable range in a north-westerly direction.

The prairies are of two kinds, the "arable" and the "dry," the former having a good depth of black mould, while the soil of the latter is usually limited to two or three inches. The arable prairie in the United States is found to extend throughout the valley of the Mississippi, but west of that the dry arid prairie extends without interruption to the Rocky Mountains. On the British side of the line the same difference exists, the arable prairie being confined to the basin of Red River, while the dry prairie extends west to the mountains. But besides these two there is another kind of prairie, which, for sake of distinction, I call "Willow Prairie," it was probably originally wood land, which being by the continual prairie fires cleared of trees, there now remains a fine vegetable soil, on which vetches and plants of that kind flourish, besides the grass, while some willows are generally found, often very small, but after the absence of fire for some years, they grow to considerable size. Along the edge of the line of woods is usually a belt of this willow land of greater or less width, but often separating the true prairies from the woods by some miles.

Crossing this generally level district there are what are called "Coteaus," which, in my opinion, are the rises of the successive steps of the plains as they gain altitude, and in travelling westward, on mounting one of these coteaus, you do not again descend but continue at a higher level. They may have been coast lines of the sea at different periods of submersion, the effects of which are so clearly shown in the "river levels" which have been described in Appendix II.

*Rocky Mountains.*—The Rocky Mountains, forming the western boundary of the plains described, have a general direction N.N.W. and S.S.E., and are characterized by a great absence of prominent peaks, being in fact generally a number of parallel ridges with intervening valleys. They appear to reach their greatest height, 15,000 to 16,000 feet, about latitude 52° north, which also seems to be their broadest part north of 49°.

The line of watershed, as far as latitude 51° north, is near the eastern edge, but from thence north it seems to tend more to the westward, and at the several places where it has been crossed is nearly of the same altitude, viz., from 5,000 to 6,000 feet above the sea level. To the south of 51°, but particularly near the international boundary, the range is very narrow, not over 40 miles in width. It is remarkable that no primitive rock has been found in these mountains between 52° north and the boundary, while it exists in the cascade range of British Columbia, hence we may infer that it is not probable that gold will be found on their eastern side.

Owing to the great altitude of the plains the mountains do not appear of any considerable elevation when seen from the east side, and it is a fact that most of the western are much more precipitous than the eastern slopes.

These mountains, in the part of which I speak, are generally, except at their summits, well wooded; but owing to the climate the growth of the trees is inferior on the eastern declivity, while from some other cause the flora of the two sides is quite distinct. Perpetual snow only rests on some of the higher peaks; but during the summer falls of snow occur, but the snow does not lie long; a small glacier or two have been seen.

*Rivers.*—Of the rivers of the district, besides the Athabasca, a tributary of the Mackenzie, up which boats can be pushed to Jasper's House in the Rocky Mountains and the Assiniboine and its tributaries, which can hardly be said to be fit for anything but canoes, there remain Red River of the north, rising near the Mississippi, 280 miles south of the boundary, and running into Lake Winipeg and the Saskatchewan, discharging into the north end of the same lake the waters of the Rocky Mountains. These two differ considerably, the former being sluggish and deep, while the latter is swift and shallow.

*Red River.*—Red River cannot in length be compared with the Saskatchewan, but for the present interests of the interior it is of more importance than the other. It is somewhat tortuous, but is navigable for small steamers from Lake Winipeg a considerable distance into the territory of the United States, and I have just heard that a steam-boat, which was built by some Americans last winter, arrived at Red River Settlement on its first trip on the 10th of June last.

This river rises with the breaking up of the ice, which occurs from the beginning to the end of April, and on two occasions during the memory of the settlers has risen so high as to flood the whole country, destroying houses, cattle, and human life. It gradually begins to fall in June, and is lowest in the autumn.

*Saskatchewan River.*—The Saskatchewan, unlike the river just described, obtains nearly the whole of its water from the mountains, and has consequently little or no spring flood, but begins to rise from the 10th to 15th of June, with the melting of the snow at those high elevations, continuing high for six weeks or so, and begins to subside again in August; as the cool weather comes it falls rapidly.

*Navigation.*—Taking either branch of this river, it is navigable for boats from Lake Winipeg to near the base of the Rocky Mountains, a distance of about 1,200 miles, but for steam navigation the river is but ill adapted, and I am glad to say that I was fortunate to travel on it from its mouth to Fort Edmonton, 1,000 miles up, at a time of year when I saw the water at its lowest, otherwise I might have formed most erroneous impressions. Commencing at its mouth, there is a good entrance from Lake Winipeg, and a safe and sheltered harbour inside; just above this, however, is the foot of a large and strong rapid above 2½ miles in length, caused by the breaking of the river through a belt of limestone, this is called the Grand Rapid, and is a barrier to the ascent of loaded boats, which the first mile and a half are hauled or "tracked" up in half cargo, and for the remainder or strong part of the rapid are entirely discharged, the cargoes being carried over the mile portage on the north side, and the boats themselves hauled up along the south shore under the limestone cliffs. In making the descent the boats are "run" with full cargo, but not without some risk of striking rocks or stones. For a description of the kind of boat, number of men, cargo, and other particulars, see "Report on the Route between York Factory and Lake Winipeg," Appendix I.

The worst part of the rapid for steamboat navigation is the lower half, in which the water is shoal the whole way across. As for the upper part, although very strong, a steamer might perhaps be warped up.

This is the greatest, and supposed by many to be the only rapid in this river, it having been stated in the House of Commons, on apparently good authority, that "with this one exception you could take a vessel of considerable size up to the foot of the Rocky Mountains." This is, however, far from being the case.

About five miles above the Grand Rapid, during which distance the river is nearly half a mile wide, Cross Lake is entered, between some islands where there is a considerable current; at the western end of Cross Lake, and between that and Cedar Lake, there are some small rapids, which, during high water, may perhaps be passed, but in the fall of the year boats have to discharge the greater part of their cargoes. Cedar Lake (as will be seen by the map) is one of considerable size, containing numerous islands, and about it is timber available for building purposes, which may also be said of the country east to lake Winipeg. The south side of this lake is only separated from Winipegosis



Lake by a little over four miles of land, and where my winter track is shown as passing across is the "Mossey Portage," formerly used by the boats of the Swan River district of the fur trade in going to and from Hudson's Bay.

Lake Winnipegosis has been determined to be four feet above Cedar Lake in the spring, but in passing over as I did, without time to measure it, I was under the impression that Cedar Lake was much the higher.

To continue the Saskatchewan River for the next 180 miles or so, to the foot of Thobon's Rapid, just above the "Mosquito Point," owing to the very level and low country through which it flows, is tortuous, and for about 70 miles west of Cedar Lake the waters are divided into two channels, one passing near Moose Lake, while the other runs through Muddy Lake, in the centre of which there is at low water a small rapid. The northern channel is somewhat longer, and after they unite the river continues of considerable depth, passing south of Pine Island or Cumberland Lake, with which it is connected by streams navigable for boats, and into or out of which the waters flow according to the height of the main river. Through this lake is the route to English River and the north.

Thobon's Rapid is certainly not navigable for steamers at low water, and I should much doubt if it were even at high, but the difference caused by the state of the water in a rapid is so great that it is hardly safe to give an opinion. From this the elevation of the country begins, and there is no rapid until the Nepowewin, about 80 miles below "the Forks;" but I should think that at high water this would be capable of being surmounted.

Thus, in summing up the Lower Saskatchewan River, or Saskatchewan below the Forks, we may say that at high water a steamer could run from Cedar Lake to Thobon's Rapid, and from thence to the Forks. There are, however, a good many shoals, sand bars, or "batteurs," as they are called by the voyagers, below "Pemmican Point." Of the south branch I know little, except by report. It is of a strong current and stony bottom near its mouth, and after that "batteurs" are numerous to within a short distance of the junction of Red Deer's River, the former site of Chesterfield House, and it is said by the few persons who have ascended it in boats to be navigable for steamboats during high summer water.

For some miles above the Forks the north branch is obstructed by a succession of small rapids, usually called the "Col Rapids," this part is certainly impassable for large craft during low water, but those who have seen these rapids in high water think there would be no obstruction to a steamboat. From the head of these rapids the bed of the river is filled with batteurs or sand bars as far as the mouth of Vermillion Creek, about 25 miles above Fort Pitt, after which the bottom is usually of a strong nature, which continues to Fort Edmonton, some distance below which there are small rapids and shoal places in the fall of the year. Of the distance to which a steamer would ascend in high water I can give no positive information, but I should suppose that one adapted for that kind of navigation might possibly reach Fort Edmonton, but in low water little could be accomplished in most parts.

This river is usually closed with ice for five months from the second week of November to the second week of April, but of course becomes navigable much sooner than the lakes, which are never clear of ice until June. On the whole it can hardly be considered as a river offering much advantage to steam navigation, on account of its small size in comparison to its length, which need not appear so extraordinary when we consider that it runs through a great extent of level plains, from which it receives no waters, there being a remarkable absence of tributaries. In fact the Saskatchewan does not drain the plains, but traverses the country as a canal fed from the Rocky Mountains, it may therefore be said to have no basin, and consequently "the fertile valley of the" Great Saskatchewan, containing an unlimited extent of arable land," really does not exist. The water of the Saskatchewan, except near the mountains, is very earthy, especially during flood, and helps to give to Lake Winnipeg its expressive name. Many of those persons who "summer inland," as it is called, that is remain at the forts during the voyaging season, are affected more or less with the goitre, which is attributed to the water. From the Forks upwards the river is generally in a deep narrow valley about 200 feet below the level of the surrounding country, and in many parts having precipitous banks. I ascertained the current at Fort Pitt during high water to be two and a half knots per hour, but during spring and fall it would in most parts probably not exceed two miles.

The fall of the north branch, as determined by barometric observations, is from Edmonton to Lake Winnipeg, including the Grand Rapid, at an average of 1.4 feet per statute mile, but the rise above Fort Edmonton is probably much greater. Of the south branch there are no observations between its mouth and the site of Bow Fort, which, taking the whole, would give a fall of 4 feet per mile, but of course it would be greater than that in the upper and much less in the lower parts; however, taking its tributary, the Red Deer River at its forks, would give from thence to the forks of the Saskatchewan an average of nearly three feet per mile. We may therefore safely suppose that the fall of the south branch from the site of Chesterfield or its forks to its junction with the north is not over 2 feet per mile, and this is what my observations give on the fall of the north branch from Fort Pitt in the same longitude as the site of Chesterfield House to the junction. After a few days of warm weather during summer the river is sure to rise, owing to the increased melting of the snow in the mountains, and in spring, should the ice choke in any part when running, it causes considerable rise above that point. The thickness of ice in mid-winter is from three to four feet.

*Boats and Steamboats.*—With regard to the navigation of any part of a river, it is not to be thought that because boats have considerable difficulty it would be impassable for steamers, for boats are, when "tracking," limited to a certain distance from the bank by the length of the line, while steamers can, if required, keep mid-channel. Cord wood for the use of steamboats would be procurable at almost

any part of the Lower Saskatchewan and north branch, but there will probably be found to be a scarcity on the south; it however could be rafted down from near the mountains.

*Lakes.*—The lakes are a great feature in the eastern part of this district, and from their comparative shallowness may be considered the lowest of the great steps of which this country is made up. The principal ones, and which are connected with each other, are Winnipeg, Manitoba, and Winnipegosis or Little Winnipeg. Owing to the level of the country to the west of the first and surrounding the others, they are of very irregular forms, and this is so much the case to the north of those enumerated that the whole country about Cumberland and “the Pas” is nothing but connected lakes and swamps, very convenient for canoe travelling in summer, as well as being a great resort for multitudes of waterfowl. In the upper parts of the country the lakes are detached, although in some parts pretty numerous, and are mostly valuable as fishing places.

The altitude of Lake Winnipeg is found to be but a few feet above Lake Superior, having been determined by the Canadian surveyors to be 630 feet above the sea. Manitoba is somewhat above it, and there is said to be a difference of five feet in favour of Winnipegosis over the latter.

The greatest depth of Lake Winnipeg as far as yet ascertained is 60, while Manitoba is merely 15 to 18 feet, and with a generally level bottom, the remaining one differing very little, except at its upper end, where it is said to be deep.

#### A.—II.

##### NATURAL PRODUCTIONS.

The natural productions of a tract of country of such extent as the interior of British North America may readily be supposed to be very varied, but various as they are, they may be all classed under the three heads—Mineral, Vegetable, and Animal.

*Minerals.*—From our imperfect knowledge of the greater portion of the country in a geological way, little can be said in relation to its minerals; but to commence with the metals. The province of Columbia and her gold fields not coming under the appellation of “the interior,” I cannot record the existence of gold in any part of the country, and the geological structure of the western portion is far from holding out any prospects in that way. Of course there have been here as elsewhere reports of the discovery of gold in certain places, but, as is often unfortunately true, all glittering substances are not gold.

Sir John Richardson’s “Journal of a Boat Voyage” contains the greater part of the reliable information concerning the mineral resources of the north, and from that and other statements from actual observation we gain the following information:—that both copper and malachite exist in the region of the Copper Mine River in sufficient quantities to pay the working in time to come when the southern portion of the country becomes peopled, providing that dependence can be placed on an uninterrupted summer of sufficient length; that pluumbago is found on Lake Athabasca, as well as iron and mineral pitch, which latter is in abundance, and will probably be for many years of more use than any of the others.

Again, with respect to salt, besides that stated to be found in “a very pure state near Great Slave Lake,” there are numerous salt springs on the borders of Lakes Manitoba and Winnipegosis, some of which are now worked to advantage and used at “the settlement” on Red River. Even with the primitive mode in use salt of a very fair quality is manufactured, and from the report of Professor Hind, who geologically examined that district, there is every reason to suppose that salt could be produced in sufficient quantity for the whole consumption of the country. The native salt sells at Red River Settlement for 10s. per bushel, all the remaining salt coming from England or the United States, by either of which routes the freight is necessarily high.

Limestone occurs at Red River and the west side of Lake Winnipeg, suitable for building purposes or the manufacture of lime, and there is an inexhaustible supply of granite on the east side of that lake and the country through to Lake Superior and Hudson’s Bay. On the Saskatchewan, where there is but little limestone to be found, and where there are no means of burning it, a kind of clay, known by the name of “white mud,” is used for white washing and other purposes, and in such a dry climate makes a good substitute for lime.

Of coal, I believe that none of secondary formation has yet been found, except in the Arctic Sea; but what is considered to be a tertiary coal or lignite has been discovered in several places, and, curiously enough, the district in which it exists is that in which wood being rather scarce, it will in time to come (should it prove suitable for domestic and steam purposes) be in large demand.

A small seam of nine inches in thickness was discovered by Dr. Hector on the Assouri River, near the international boundary, in longitude 104° W. It also exists in beds from 2 to 2½ feet in thickness on the banks of the north branch of the Saskatchewan, at Fort Edmonton, and it is said, with little interruption, to Rocky Mountain House, 200 miles above, and as the formation containing this deposit extends considerably to the south (lignite being found on the upper waters of the Missouri), the same substance will probably be found in most of the tributaries of the south branch. It has already been discovered on Red Deer River, in beds so close that out of 20 feet of strata 12 were of coal. This coal of the Upper Saskatchewan is considered to be of a different age to that first found, but no report has yet appeared of its quality. I have seen it in use at Fort Edmonton for the forge, where it is there preferred to charcoal, but is said to require rather a strong draught.

*Vegetable Productions.*—The vegetable productions of the country, although numerous, are not such as are likely to cause any great traffic with other parts, but will be found of considerable domestic value.

From all accounts the best timbered country is between Red River and Lake Superior, many of the trees flourishing there which do not exist in other parts, while the size of the timber is greater. There can, therefore, be no want of wood for building purposes in that district.



*Trees.*—The oak is not found to the north or north-west of Red River and Lake Manitoba. The ash extends to the lower part of the Saskatchewan only. One species of maple (ash-leaved) exists on the Saskatchewan and throughout the southern country, which is much used by the natives for the manufacture of sugar. Elm reaches only to the Lower Saskatchewan. Both balsam, poplar, and aspen are the common trees of the plain country, the former being generally confined to the sandy and moist intervale land along the rivers, while the latter, which never attains large size, is to be found everywhere, and is the only tree existing on the edges of the dry western prairies. Possibly, the considerable rise in the elevation of these plains may limit some of the species.

The usual members of the pine family are the white spruce (*a. alba*), the American larch or juniper, the fir (*a. balsamea*), and Bank's pine, the last never attaining large size, and the fir being of little value as timber. Building and boat timber is usually cut from the spruce (called "pine" in the country), except when required of particular durability or for some special purpose. This wood has the advantage of being light, easily worked, and of sufficient strength for ordinary purposes, but unless of good size it is by no means free from knots.

White or bass wood is used for some purposes at Red River Settlement, but is confined to the most southern parts of the territory. I should have said that birch exists to a considerable distance north, and is used for carts and sleds when oak is not attainable, as balsam poplar is also sometimes used for building purposes.

The sides of the Rocky Mountains are well wooded, and I doubt not that they will be resorted to to supply the prairie country with timber by means of the rivers. As you proceed northwards, particularly approaching Hudson's Bay, the trees become more and more stunted until you reach the region called "the Barren Grounds."

*Grass.*—Of other vegetable productions existing in a state of nature, grass for hay is to be found in abundance on the numerous swamps, and in such a region, where the summer is so dry and hot, requires little or no trouble in making.

Grass for pasture is abundant all throughout the plain country, that on the dry prairie being short, but at the same time nutritious, while on the tracts of the former woodlands it is often thickly interspersed with different sorts of vetch, excellent food for cattle and horses.

*Berries and Roots.*—Berries of different kinds are abundant in most parts of the country, including cranberry, saskatoon, pembina, currant (the black being very fine), gooseberry (small), raspberries, and strawberries, and these are found of great use and much sought after by the natives, where farinaceous food is so scarce. Wild rice is plentiful in the region of Rainy Lake. A root which grows on the prairie is dug up by the Indians and greatly used by them; it is called the prairie "turnip," but assimilates to that root only, I think, in growing under ground, being more the shape of a carrot or rather Jerusalem artichoke, and by no means of the most tender nature. Other roots and barks are used for medicinal and dyeing purposes.

*Animals.*—I now come to what may be called the staple natural produce of the interior, the animals, for it is on these, their flesh, their skins, their furs, their tallow, and their oil, that the whole of the natives exist, besides being a great source of wealth to those Europeans and others engaged in the Indian trade.

It will be needless here to enumerate the different fur-bearing animals, and out of place to enter into the details of the fur trade, which will be touched upon when I come to speak of the development of the resources of the country; I shall, therefore, refer simply to those animals on which the natives depend for their support.

The use to which the Indians put the larger mammalia, such as the deer and buffalo, is in the manufacture of their skins into untanned leather for wearing apparel, tents, horse and dog harness, and for the purpose of cords or lines of all sorts, canoes, &c., besides curing the meat and tallow which they get from the carcass for food.

Those tribes inhabiting the north, Hudson's Bay, and other wooded portions of the country exist chiefly on the two kinds of reindeer or caribon and the moose, besides which the black bear, musk rat, porcupine, beaver, and that most useful of all animals in times of scarcity, the never failing rabbit or rather hare, together with fish and fowl. The musk ox is confined to the north.

*Buffalo.*—Those Indians belonging to the prairie and semi-prairie parts of the great plains depend for their support almost entirely on the buffalo, or, as it should, perhaps, be called, strictly speaking, the bison; and as the Indians of this district outnumber all the others, while at the same time the greater portion of the voyagers and others engaged in the fur trade are fed on provisions manufactured from this animal, together with the half-breeds of Red River, and also, considering the numbers which are wantonly slaughtered, it cannot but appear evident that this animal must exist in immense numbers. Having taken some trouble to obtain the most reliable data in respect of the numbers annually killed, in which I have been aided by gentlemen in the fur trade, I consider since 1842, when the Hudson's Bay Company first commenced to trade to any great extent in robes, there have been no less than 145,000 buffalo annually killed in British territory; while on the great prairies on the American side, where the trade in buffalo robes has been carried on to a far greater extent, the amount annually slaughtered at the early part of the period mentioned was upwards of 1,000,000, but this trade is now said to have decreased on the Missouri one-half. In 1855, on the British side alone, there were 20,000 robes and skins received at York Factory on Hudson's Bay, which, making all allowances, would give about 230,000 slaughtered the previous year. This in a civilized country, allowing 2lbs. per head per diem, a very liberal allowance, would have served to sustain a population of a quarter of a million, while, probably, 30,000 only benefited by this slaughter.

From these statements it is but reasonable to suppose, that although the buffalo still exist in immense numbers, they must be on the decrease, and it is well known that on the southern prairies

they are becoming very scarce, and on the west side of the mountains are extinct; while in the country of the Saskatchewan, notwithstanding that the contrary opinion is held by many, they are also decreasing, being now unknown in places where they were formerly abundant. This the Indians know well, and may yet know to their cost, for if some decided measures be not taken, Indians and buffalo will disappear simultaneously. We may, nevertheless, look for their existence yet for many years, for the decrease in the buffalo on the Saskatchewan does not seem to be proportionate to the numbers killed, and it is a prevailing idea with some people, that the animals are being driven north from the Missouri on to British ground; this may to some extent be the case.

*Other Large Game.*—As I before stated, the prairie Indians depend almost entirely on buffalo for their support, and the only mode of curing the meat is by drying or “jerking,” which may or may not be by pounding and mixing with grease, formed into “pemmican.” But those Indians inhabiting the slopes of the mountains and semi-wooded country around the edge of the prairies also kill for the sake of their skins and meat, the wapiti, two smaller kinds of deer, the prong-horned antelope, black and grisly bears, big-horn and mountain goat, besides the fur-bearing animals, and as is the case with all Indians, resort to rabbits in case of necessity.

*Birds.*—As to birds, many Indians (but more particularly those called “Swampies”) exist for a considerable time both in spring and fall entirely on ducks, geese, and other water-fowl, at the killing of which with the least possible expenditure of ammunition they are very expert; and from the nature of the lower parts of the country, water-fowl are in so great demand for food that they are killed for the purpose of salting. As I hope soon to be in possession of returns of the numbers annually killed for that purpose in Hudson’s Bay, I shall probably insert some particulars concerning this in a paper on the “Birds of the Interior of British North America,” which it is my intention to draw up for the Zoological Society.

The white partridges (grouse and ptarmigan) are also in use as provisions in the north.

Having given this necessarily cursory view of the land animals, I come to the inhabitants of the waters.

*Aquatic Animals.*—The Esquimaux of the coasts make use of the seal as an article of food and for other purposes, and this, together with the waburs and white bear, is found amongst the Arctic Islands to Hudson’s Straits and in the Bay.

Then there is the large white porpoise, commonly called by the residents the “white whale,” which is abundant in Hudson’s Bay, usually during summer keeping about the mouths of the rivers. This animal has been made a source of some profit to the Hudson’s Bay Company by the import into England of the oil extracted from it; and they have of late years established a regular fishery for the same at Little Whale River on the east main. Of the quality of the oil I can only say, that I have heard it is found to answer the same purposes as that of the sperm whale.

*Fish.*—The fish, par excellence, of the interior is the white fish (*coreyonus albus*), which may be said to be universally distributed through the numerous lakes. It is in the opinion of all who have had opportunities of judging, the only fish of the country which one can live on continually without tiring of it. The average weight may be taken, perhaps, at from 2 to 3 lbs., but in some lakes they grow to large size, and I have myself seen them weighing upwards of 11 lbs., and the average of 200 from 5 to 7 lbs. A smaller species of white fish is found near the mouths of rivers emptying into Hudson’s Bay. The fish next in request is the sturgeon, of which there are two or more species inhabiting the lakes and rivers; and although they do not in these inland waters reach the size of the Columbia River fish, yet they are met with in the Winnipeg and Lower Saskatchewan districts to 160 lbs. To give some idea of the rations required to feed the inmates of a trading post, including the dogs, I may mention that at Cumberland House, there are yearly taken 500 to 700 sturgeon and 10,000 white fish, while at the same time potatoes, barley, and a little wheat are grown. There are many other kinds of fish, pike, gold-eyes, trout (some of which attain immense size), cat-fish, suckers, &c., which all serve to keep the pot boiling during hard times.

The general mode of fishing throughout the country (sturgeon included) is with the net, summer and winter; during the latter time the nets are set under the ice. A great advantage of the severe weather of winter is that fish as well as all meat requires no curing of any sort, but is kept frozen; and in the buffalo country it is usual to construct ice cellars on the approach of spring, when a large supply of meat may be kept during the ensuing warm weather.

### A.—III.

#### CLIMATE.

*Climate.*—Having giving a general description of the natural productions as well as the physical features of the interior, it is necessary, before speaking of the development of its resources, to give some idea of the climate, and in so doing I shall omit the scientific and unnecessary details, which would rather confuse than elucidate.

There have been and possibly still exist, more particularly in Canada, most erroneous opinions concerning the country and climate of the Red River and the west; I have seen it described as superior even to the south-western peninsula of Canada, which to any observant person must appear absurd; and those who have been led away by such statements need only have looked at any map of the continent to have been convinced that, in the face of 5° difference of latitude between even the central part of that peninsula and the most southern limits of the interior, notwithstanding the westing, this was most improbable.

*Materials.*—The materials from which a knowledge of the climate of the country under consideration has been drawn are the results of regular meteorological observations carried on simultaneously



at Red River Settlement and Fort Carlton on the Saskatchewan River; two points which could hardly have been more happily situated had they been selected purposely. At Red River two distinct sets of observations were kept up, one at the Hospital of the Royal Canadian Rifles under the direction of Dr. Stranaghan of the Medical Staff, while the other was the continuation of a register kept by Mr. Donald Gunn, of St. Andrews; to both of these gentlemen I am greatly indebted for full copies of their observations. That at Fort Carlton was of observations made during the stay of Captain Palliser's expedition, and afterwards kept up by Mr. Richard Hardisty, the gentleman in charge, and those under him. All the above observations have been discussed for 18 months, commencing November 1857. But besides these simultaneous observations, others have been made on former occasions, among which I may mention those of Lieutenant now Colonel Lefroy, R.A., at Lake Athabasca and Fort Simpson in 1843-4; those of Sir John Richardson and Dr. Rae at Great Bear Lake in 1848-9; those of Franklin's two journeys; besides a number of registers and detached observations collected in Sir John Richardson's "Journal of a Boat Voyage." Also, with a view to assist me in drawing a comparison with the climate of Canada, Professor Kingston, in charge of the "Provincial Observatory" at Toronto, has kindly furnished me with numerous records of meteorological observations.

From these several sources then has the information been drawn, of which, although the results appear small, yet the labour required in carrying out, as well as discussing the observations, is very considerable.

*Climate of Interior.*—From the maxima, minima, and means deduced from these observations it appears, taking the climate of Toronto as a base, that while the mean summer temperature at Red River differs but little, that of winter falls far below it; and speaking generally, the climate of the interior may be said to be one of extremes. I have drawn the annexed plate in order to show at a glance the corresponding temperatures at the different places selected; which, although not giving the details which would appear in a more scientific paper, yet may be sufficient for the present purpose.

*Division of the Seasons.*—I have not followed the general mode of dividing the seasons, which, although adapted to temperate regions, fails to give a good idea of a climate where the transition from an Arctic to an almost tropical temperature is so sudden, I have therefore considered the winter season as embracing five months, which leaves summer as usually taken, but cuts off the coldest month from both spring and autumn.

*Stations.*—The different stations have been selected as those which, from their positions and the number of meteorological observations made at them, would afford the best general information of the climate of the whole country. There are, of course, certain situations where influences of a local nature seem to modify the climate, but these are only exceptions, and do not enter into the general view.

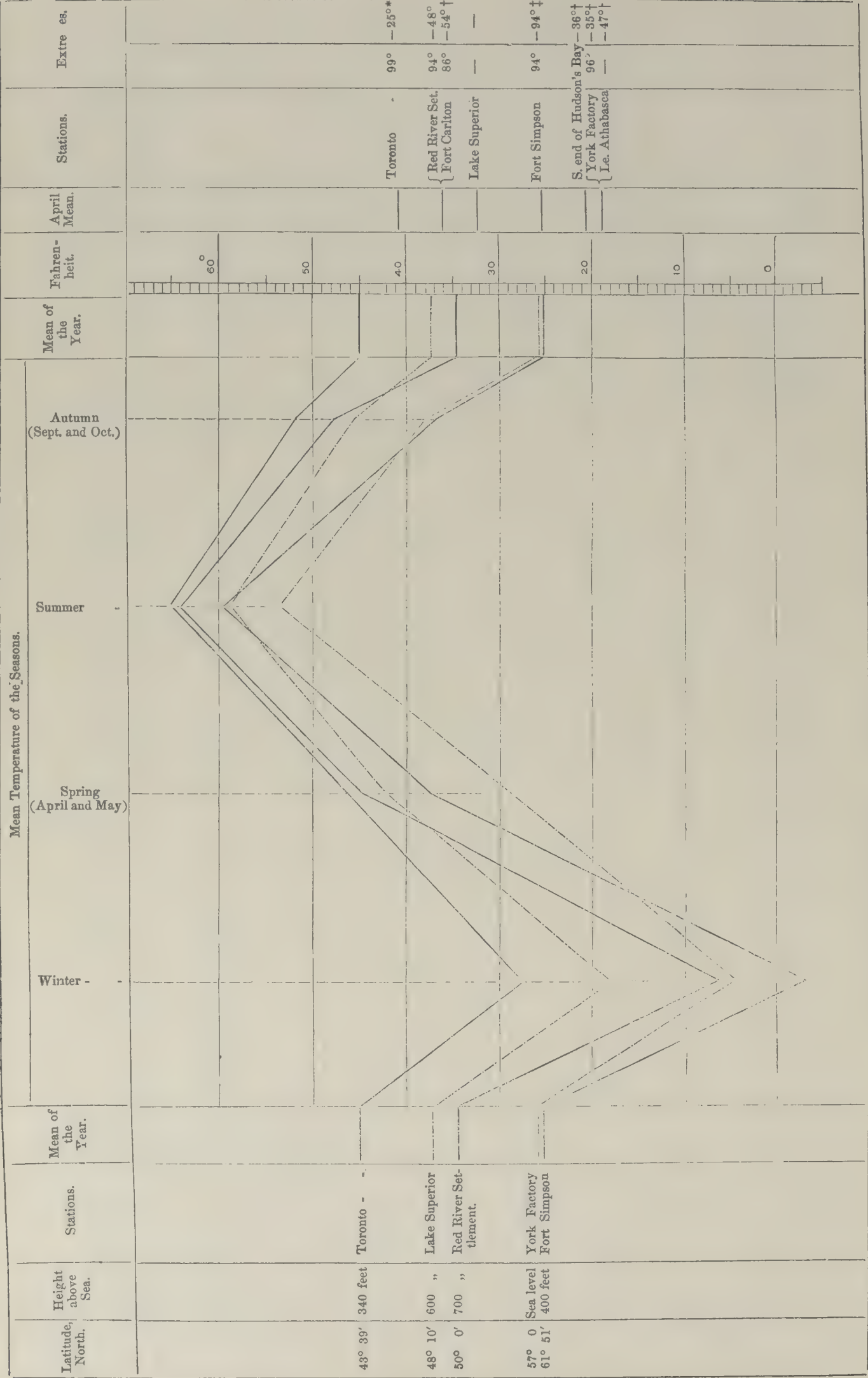
*Facts relating to the Climate.*—Before attempting to draw any general conclusions, I will direct attention to a few facts which ought to be kept in view. First, the mean annual temperature of the whole interior is lower than Canada; second, that while the mean summer temperature in the southern part is nearly equal to that of Toronto, the winter climate is much more severe; and lastly, the spring temperature of the western plains in latitude 53° N., notwithstanding their elevation nearly equals Toronto, 8° further south.

*Influence of Lakes.*—Then with respect to the country itself, it must be apparent to any one that Hudson's Bay and the Lakes have very great influence on the climate, particularly with respect to the spring and summer temperature. Hence the wide discrepancy between Fort Simpson and York Factory or the south of Hudson's Bay, which having annual temperatures equal to and above the first, fall so much short of it in the spring; again the backward spring season of Lake Superior results from the ice it contains, while the coldness of the deep water during summer aids in tempering that season; the same holds good for Lake Athabasca. And lastly, the comparatively low spring (particularly April) temperature of Red River compared with the Saskatchewan at so much greater elevation is no doubt due to its proximity to Lake Winnipeg.

In a report contained in the Parliamentary Papers (dated June 1859), concerning the exploration of the country between Lake Superior and Red River Settlement, carried on under the Canadian Government, there is a comparison given of the climates of Red River Settlement and Toronto, and which from its authority might be liable to lead many into error. But it appears that only one year's observations having been taken, and the means deduced from certain hours of the day without correction, it has made the summer temperature of Red River 4° higher than that of Toronto; and again, owing to the estimated amount of rain at the former having been compared with the actual amount at Toronto, has given no less than 21 inches in favour of Red River for the summer season alone. Now, although this may be the case, it is hardly probable; and although the inhabitants of Red River Settlement should take into account the good as well as the harm done by the frequent thunder storms which pass over that region during the hot summer weather, yet I must hold to the opinion that the fall of rain has been somewhat exaggerated. I need only refer to the plate on the following page for the results of carefully corrected registrations of the temperature of the whole year and several seasons, which will, I think, be found not very wide of the truth.

*Cold Nights.*—It should here be observed, with respect to the climate of the Red River and Saskatchewan country, that although the summer temperature is high, yet the thermometer generally falls to the freezing point at the end of May and August, and occasionally frosts occur in

TEMPERATURE OF THE AIR, BRITISH NORTH AMERICA.



\* Twenty years' observation. † One year. ‡ Probably much lower in some winters.



every month in the year. I have myself, at 2,000 feet above the sea, registered the thermometer at  $86^{\circ}$  on the 17th July in latitude  $53^{\circ}$ , and but nine days after, not having changed my altitude more than 1,000 feet, and to the south of the former position, seen it at  $31^{\circ}$  at sunrise.

*Winter.*—Winter may be said to set in with November and last till the end of March or middle of April; but the first snow falls sometimes in the commencement of October and lasts until May. The thermometer ranges over  $140^{\circ}$  of Fahrenheit.

There sometimes occur most exceptional phenomena; thus, in March 1858, after two days of magnificent auroral displays and intense magnetic disturbance, a cyclone or revolving storm, which at Red River on the 14th was accompanied by thunder, passed over the country, bringing rain and a rapid thaw; a few days after the thermometer was at  $2^{\circ}$ , and had been  $25^{\circ}$  below zero on the 1st of the month.

*Rivers and Lakes ice-bound.*—Although Lake Winipeg is seldom navigable before June, yet the Red River and Saskatchewan having been closed for the previous five months usually break up about the middle of April; however this also varies, for on the 1st of May of the present year I crossed the Red River at  $49^{\circ}$  parallel on the ice with horses; while on the same day, the snow being on the ground, the thermometer rose to  $74^{\circ}$ .

*Wind and Rain.*—The prevailing winds at Red River Settlement are north and south, the former being about one-fourth and the latter one-third of the whole from the eight principal points of the compass; the remainder being mostly on the west side. At Red River and on the Saskatchewan, when a north-east or easterly wind springs up, thick weather is certain to follow, which in summer is usually attended with rain and in winter snow; this is, no doubt, entirely owing to the presence of ice at the former and open sea during the latter season in Hudson's Bay; and it should be recollected that the bay has a greater influence on the climate of the more northern part than any other feature of the continent. Were it not for the bay the British territory would be no better than the sterile waste on the eastern flank of the chain of the Rocky Mountains, which is already being felt as such a formidable barrier to the progress of western enterprise beyond the Mississippi valley; and moreover, when we consider that Lake Baikal and Winipeg are very similarly situated in their respective continents, and that while their mid-winter temperatures differ but little, the isothermal of July for Red River passes considerably to the south of the Siberian Lake through Central France and the Azores, we cannot but feel thankful that the Anglo-Saxon race was guided towards the New World.

*Climates of Old and New Worlds.*—Many inquire, why the climate of North America differs so much from that of Europe? But the converse should rather be asked; why does Europe differ in climate so greatly from North America? which could be answered in the few words,—on account of the gulf stream. And in comparing the climate of the two continents, we should rather contrast Europe with the Pacific side of North America and the eastern or greater portion with Asia; thus we bring together two regions having for the amelioration of their climate similar causes, namely, the gulf stream of the North Atlantic, and if we may so call it, the Pacific gulf stream, while the two other masses of land are under much the same conditions, with the exception, perhaps, of Siberia containing no equivalent to Hudson's Bay.

## B.

### THE INHABITANTS.

The inhabitants of the vast but thinly populated interior of Northern America are separable into four divisions; namely, North American Indians, Esquimaux, whites, and half-breeds; the aborigines being the most numerous, and the whites considerably in the minority.

## I.

### ABORIGINES.

*Esquimaux.*—First, in speaking of the Esquimaux or Arctic natives, I will give in a few words such information as I have gained from the works of explorers and by intercourse with gentlemen of the fur trade.

The Esquimaux, as one person remarked to me, "are not Indians, we never call them Indians," said he; "they are as distinct from the real Indians as the negro from the white man; they are more like Europeans in appearance, traditions, and mode of life." Little doubt exists but that the Esquimaux of the Arctic regions of Europe, Asia, and America are the same race; but I shall leave to ethnologists to determine where was their original habitat, or how and for what purpose they were distributed as we now find them, as well as the origin of the Indians of this new world. Besides assimilating to the whites in appearance, the Esquimaux possess a quality in common with them, which I may say is almost unknown among Indians, namely, providence; thus, in the season when the animals are plentiful on the shores of the Arctic Sea, they make "caches" of large quantities of meat for winter use.

Speaking generally, this nation is confined to the shores of the Arctic Sea, the northern and eastern parts of Hudson's Bay, and Labrador; and missionaries have only come in contact with them on the east main and last-mentioned place. Parties of them, inhabiting certain districts, are spoken of as being treacherous, and others again as quite the reverse.

The art of dog and sledge driving is known almost to perfection among them.

*Localities of Indian Nations.*—In enumerating the different nations and tribes of Indians inhabiting the interior, I shall not include those of Canada, for whom provision is made in that province, nor can I speak of the numerous inhabitants of the Pacific coast.

According to ethnologists, the different tribes inhabiting the country are ranged under five great nations—the Algonquin, Dacotah, Chipweyan, the Kutchin, and those of the Pacific slope, which severally include the tribes as here enumerated:—

1. Aborigines.—1. Crees of the coast.  
2. Swampy Crees.  
3. Thickwood Crees.  
4. Prairie Crees.  
5. Mountain Crees.  
6. Saulteau or Chippeway.
2. Dacotah. — 1. Sioux.  
2. Assiniboine or Stone Indians (prairie and wood).  
3. Blackfeet (including Blood and Picgam.)
3. Chipweyans.—1. Chipweyan (proper).  
2. Hare Indians.  
3. Dog Ribs.  
4. Beaver Indians.  
4. Lucre (Circees.)
4. Kutchin or Loucheaux.
- 5.—1. Kootonays.  
2. Flathead.  
3. Shoushwaps.

To begin with the north, the different tribes of Chipweyans extend from the north-western part of Hudson's Bay across the continent to the Pacific, bordering the Esquimaux on the north, except westward of Mackenzie's River, where the Kutchin interpose, who extend into the Russian dominions, and are said to be a people of large stature and warlike nature.

To the south of the Chipweyan barrier comes the Algonquin nation, whose representatives in the interior are the different Crees and the Chippeways or Saulteaux; the latter are almost exclusively confined to the south part of Lake Winipeg and the country thence to and around Lake Superior. But the Crees are distributed over the whole country around Hudson's Bay, and west to the Rocky Mountains; they are numerous, and from the fact of their having always been favourable to the traders and the first to obtain fire-arms, are a powerful people. There can be little doubt but that they were in former times Indians of the woods and confined to the east of Lake Winipeg; and I think that Sir Alexander Mackenzie's theory of the progress of the different nations is not far from the truth when he says that the Algonquians have progressed westerly, the Chipweyans easterly, and the Dacotahs northerly.

The Dacotahs, of which the Sioux tribe form the greater part, being of themselves 30,000, are mostly confined to the territory of the United States; but the Assiniboine or Stone Indians of the plains of the Saskatchewan are of the Surix tribe, although they have been for many years separate from it, and the Blackfeet, three divisions of which tribe extend to the Saskatchewan near the Rocky Mountains, are all said to belong to the same nation.

*Shoushwaps.*—On the Pacific side, but near the Rocky Mountains, are the Shoushwaps, who, inhabiting the upper part of Frazer's River and the north fork of the Columbia, have always behaved peaceably towards the whites; but in search after the precious metal, unthinking persons may yet make formidable enemies out of beings heretofore considered harmless.

*Kootonays.*—To the south of these are the Kootonays, who it would appear are not a numerous tribe; they live in peace with their southern neighbours, the Flatheads, who, as they seldom come north of 49°, do not properly come under observation here. These two tribes have in times gone by joined for the purpose of carrying on war with their mutual enemies, the Blackfeet, who have usually commenced the quarrel by stealing horses, in which these western slope Indians are rich. Although a quiet, peaceful, and honest tribe, the Kootonays are said to be remarkably brave, and have on different occasions made such a display of strength that their former enemies are now glad enough to keep on terms of friendship with them. Some of the Blackfeet, therefore, usually meet them yearly when they come to the east side of the mountains (which they do regularly in the spring and fall for the purpose of killing buffalo, and curing the meat for their own subsistence and trade) for the purpose of traffic and exchange of horses, guns, blankets, and other indispensables of savage life.

Some years ago they went so far as to exchange two lads for the purpose of learning each other's languages, one of whom (a Kootonay) became useful to me as an interpreter when amongst his people. Another one, who acted as guide and interpreter in my second passage of the mountains, had when young lived a considerable time with both the Crees and Blackfeet, and boasted that he could count ten in as many languages as he had fingers on his hand, namely, Kootonay, Flathead, Blackfoot, Cree, and French, he having learned the last from the half-breed French Canadian traders.

From these circumstances, the care they bestow on their horses and cattle, and from not being addicted to begging or stealing, the Kootonays contrast favourably with the Indians of the east side, and as I have already mentioned (see Appendix II.), I am at a loss to know to what to attribute this marked difference. If, as I have premised, it can be attributed to their partial Christianization, still it remains a contrast to the effects produced elsewhere. It appears to me that they are in a state highly favourable to further civilization; and I would select the tobacco plains (the centre of their country) as a point well adapted for one of the Indian agricultural settlements, which I should propose to be established by this country for the benefit of the natives of the interior. When, indeed,



we look on the state of the aborigines throughout the world, but more particularly in North America, where the march of civilization has been so rapid, we cannot but feel that we owe something to those poor uncivilized people whom we deprive both of their lands and means of existence. This has been so ably pointed out by Mr. Hopkinson in a speech on the Seminole war on the floor of Congress, that I make no apology for giving his precise words:—

*Duty towards the Indians.*—"I may say, however, that I presume the origin of this war is the same with all our Indian wars. It lies deep, beyond the power of eradication, in the mighty wrongs we have heaped upon the miserable nations of these lands. I cannot refuse them my heartfelt sympathy; reflect upon what they were, and look upon them as they are. Great nations dwindled down into wandering tribes, and powerful kings degraded to beggarly chiefs. Once the sole possessors of unmeasurable wilds, it could not have entered into their imagination that there was a force on earth to disturb their possession and overthrow their power. It entered not into their imagination that from beyond that great water, which to them was an unpassable limit, would come a race of beings to despoil them of their inheritance, and sweep them from the earth. Three hundred years have rolled into the bosom of eternity since the white man put his foot on these silent shores, and every day and hour and every moment has been marked with some act of cruelty and oppression. Imposing on the credulity and ignorance of the aborigines, and overawing their fears by the use of instruments of death or inconceivable terror, the strangers gradually established themselves, increasing the work of destruction with the increase of their strength. The tide of civilization, for so we call it, fled from the inexhaustible sources in Europe, as well by its own means of augmentation, swells rapidly and presses on the savage. He retreats from forest to forest, from mountain to mountain, hoping at every remove he has left enough for his invaders, and may enjoy in peace his new abode; but in vain, it is only in the grave, the last retreat of man, that he will find repose. He recedes before the swelling waters; the cry of his complaint becomes more distant and feeble, and soon will be heard no more. I hear, sir, of beneficent plans for civilizing the Indians and securing their possessions to them. The great men who make these efforts will have the approbation of God and their own conscience, but this will be all their success. I consider the fate of the Indian as inevitably fixed. He must perish. The decree of extermination has long since gone forth, and the execution of it is in rapid progress. Avarice, sir, has counted their acres and power, their force and avarice and power march on together to their destruction. You talk of the scalping knife, what is it to the liquid poison you pour down the throats of these wretched beings? You declaim against the murderous tomahawk, what is it in comparison with your arms, your discipline, your numbers? The contest is in vain, and equally vain are the efforts of a handful of benevolent men against a combination of force stimulated by avarice and the temptations of wealth. When in the documents on your table I see in the triumphal march of General Jackson he meets from time to time (the only enemy he saw) groups of old men and women and children gathering on the edge of a morass, their villages destroyed, their corn and provisions carried off, houseless in the depth of winter, looking for death alternately to famine and the sword, my heart sickens at a scene so charged with wretchedness. To rouse us from a sympathy so deep, so irresistible, we are told of the scalping knife and the tomahawk of our slaughtered women and children. We speak of these things as if women and children were unknown to the Indians, as if they had no such being among them, no such near and dear relation, as if they belong only to us. It is not so. The poor Indian mother, crouching in her miserable wigwam or resting under the broad canopy of heaven, presses her naked infant to her bosom with as true and fond emotion as the fairest in our land, and her heart is torn with as keen anguish if it perish in her sight."

*Management of Indian Affairs, United States.*—The people of the United States have so far taken this subject into consideration, that a large sum is annually granted for the benefit of the aborigines, a portion of which has of late years been expended in a manner likely to be of more permanent benefit to them than the former system of Indian (so called) "presents" still carried on in Canada. In the central governments of the United States the office of Indian affairs is a branch of the department of the Interior, the business connected with which is under the control of the "Commissioner of Indian Affairs," who annually makes his report, which accompanies that of the Secretary of the Interior, and is published by the country and distributed among the members of Congress; and I have now before me the report for 1858, by which it appears that scattered throughout the Union are about 350,000 Indians, among whom are located near a hundred superintendents, agents, teachers, and farmers, whose reports are all annually published.

With respect to the manner of treating the Indians, the words of the Commissioner are "Experience has demonstrated that at least three serious, and to the Indians fatal, errors have hitherto marked the United States policy towards them, viz., their removal from place to place as white population advanced, the assignment to them of too great an extent of country to be held in common, and the allowance of large sums of money as annuities for the lands ceded by them. These errors, far more than the want of capacity on the part of the Indian, have been the cause of the very limited success of constant efforts to domesticate and civilize him."

But each year more attention is now being directed to the establishment of schools for farming and useful arts, and in some places the Indians seem to have already derived much benefit.

*The Indians on the East Side.*—Before making this digression, I submitted some general statements concerning the different nations of Indians, and having in a former report (see Appendix II.) described more particularly those Indians which I came in contact with on the west side, I shall now proceed to notice the tribes whose hunting grounds lie to the east of the Rocky Mountains, and who are more properly the aborigines of the country treated of in this report.

*Chipweyan.*—Of the northern tribes I have no personal knowledge, but the Chipweyans, with the exception of one band originally Beaver Indians, who now live on the Saskatchewan prairies under the name of Circees or Surcees, are purely Wood Indians, and are said, when the language is acquired, to be by no means difficult to deal with; and their country being mostly thick woods, and intersected by numerous rivers connecting the different lakes, their mode of life differs little from other inhabitants of similar districts, where the horse being unknown, the facilities for transport are confined to the canoe and snow shoe. Traders having been among them for many years, they are now, in common with others, dependent on the whites for articles of every-day use.

*Coast and Swampy Crees.*—The country around Hudson's Bay, and including its southern extremity, called James Bay, is thinly inhabited by Coast and Swampy Crees; and the latter extend as far inland as English River, Lake Winnipeg, and the lower part of the Saskatchewan; there are also many at the Indian settlement near the mouth of Red River, but they have only been drawn there by the advantages afforded by civilization, and of these there are few that can be called pure Indians. This is much the case throughout the whole swampy portion of the Crees, owing to their having been longer associated with whites than any other tribe. In fact, the Crees generally may thank the traders for the greater part of the interior they now have in their hands, for it is not a great many years since the Blackfeet held the whole Saskatchewan plains, at which time the Stone Indians or Assiniboines inhabited the country lying along the river of that name, and the Crees were confined mostly to the thickly-wooded country to the north of Lake Winnipeg, and between that lake and Hudson's Bay. On the fur trade, however, being pushed up the Saskatchewan and the Crees obtaining fire-arms of the traders, they drove the Blackfeet and Fall Indians, or Gros Ventres, west, at the same time taking to horses, they gradually became Prairie Indians, and forming a league with the Stone Indians, who, as late as 1819, could not obtain guns in trade at the forts, succeeded in confining Blackfeet to the limits they now rarely overstep, namely, from the upper waters of the Saskatchewan in a line towards Fort Union on the Missouri, as shown on the map. Crees also inhabit the country to the north of the Saskatchewan, where they are mostly what are called thick or strong-wood Indians, there being only a few horses among them.

*Treatment of Horses.*—The Crees of the prairies, or as they are usually called by the English speaking portion of the inhabitants, "Plain Crees," show a great want of knowledge and feeling in the treatment of their horses, which is also largely shared in by their "half brothers," who call themselves civilized. A horse by them is treated like a dog (and dogs certainly do not experience the kindest treatment at the hands of the Indian women), and they are so given to barter, that if any kind of brute having four legs and a head is offered, and some trifling article to boot, a Cree will close the bargain; there are, of course, exceptions.

There can be little doubt that the Crees originally had no horses, which their word for a horse "Mistatim" (big dog) clearly shows. We may, however, say that of all the Indians, if we are to believe that the animal did not exist in America before the invasion by the Spaniards.

The Stone Indians or Assiniboines show equal ignorance of the horse with the Crees.

The Blackfeet, being further west and south, treat their animals better, and have more of them; but the Kootonays before spoken of, living on the west side of the Rocky Mountains, have more knowledge, take more care of, and own many more horses in proportion to their numbers than any of the tribes on the east side, besides which they are adepts at the use of the lasso.

All Indians own large numbers of dogs, which are used in hauling lodge or tent poles and other loads. They live on what they can pick up or steal, and are managed by the women. They have mostly a very wolfish look, and often breed with those hyenas of the north.

*Chippeways.*—The Chippeways, or as they are also called *Saulteaux* and *Ojibeways*, are in language and habits nearly related to the Crees.

They are, I think, generally speaking a fine race, as I have seen many men of large stature among them, and on an average (although I have not data on which to give a decided opinion) are probably over the height of Anglo-Saxons, from whom the Indians generally differ little, although they are usually not so stoutly formed as the white man.

The Chippeway country is around Lake Superior and Red River, a few being to the west of Lake Winnipeg. They are essentially Wood Indians, but some few, as is always the case, bordering on the prairie Indians, have fallen into their mode of life. They seem to be, if we may judge from the reports of travellers through their country, somewhat noted for their elocution, but to make a little too much out of Indian speeches is an error into which many persons fall.

However the Chippeways are a good deal mixed up with half-breeds and Swampy Crees at Red River Settlement, some going under the name of Christians, and are generally very favourable to the whites.

*Sioux Nation.*—I have last to speak of the Sioux or Dacotah Indians, the mention of whose name strikes terror into the mind of may a young half-breed, brought up to regard them as inveterate and bloodthirsty enemies.

*Stone Indians.*—The Stone Indians or Assiniboines were of this people, but in times long past separated from the main tribe, and now live at peace with the Crees from the Missouri to the Saskatchewan, besides a few families along the Rocky Mountains. Within the memory of man they have been dreadfully reduced by that scourge of savage life, the small-pox. In habits they differ little from the Crees, but were formerly considered much greater thieves.

*Sioux.*—The Sioux proper do not live to the north of the international boundary, but as they are often encountered by the Red River half-breed hunters, who are their inveterate enemies, I considered that I was bound to introduce them here. They are numerous, and said to be brave,



and the Salteaux (Chippeways of Red River) are their perpetual enemies, and sometimes join the half-breeds for the purpose of chastising them.

*Blackfeet.*—The Blackfeet, who are said to be of the Dacotah nation, and of whom the different branches, Blackfeet proper, Piegans, Blood Indians, and Gros-Ventres or Fall Indians are still in large numbers, constitute a powerful tribe. This people is, perhaps, of all the Indians east of the Rocky Mountains the least dependent on the whites, and having in times past caused considerable annoyance to the traders by their depredations, and, moreover, being seldom at peace with the Indians around them, they received a bad name, which has clung to them. Since, however, I have had opportunities of judging of their character compared with that of the other tribes inhabiting the plains, I have formed a more favourable impression of them. They are, in common with their neighbours, the Crees and Stone Indians, great thieves, as also beggars, but on account of having been brought less in contact with the whites, they have a more independent manner. Their chiefs also have some command over their men, which is but very slightly the case among either Stone or Cree Indians. They are true Prairie Indians, and occupy the whole country from the Missouri on the south to the Saskatchewan on the north, near the Rocky Mountains. Their territory formerly, as has been said, extended far to the east. The buffalo is their main support. From conversations which I had with several of them, it would appear that they are favourably inclined towards the introduction of civilization among them, which has as yet hardly been attempted. They are aware that the buffalo are rapidly decreasing, and foresee that their descendants will have to take to some other way of living than the lazy yet not luxurious mode followed at present. The custom of polygamy is more prevalent among them than with the Crees, but the women are better looking and far cleaner than their neighbours. The men are also I think generally more robust. Owing to the laws of the United States prohibiting the sale of spirituous liquors to the Indians, they can obtain very little on the Missouri, and although they go there to get their goods at the cheaper rate, yet they often travel five or six hundred miles for the purpose of obtaining the much coveted commodity at the Hudson's Bay Company trading posts on the Saskatchewan River, where they are never refused if they pay in horses or dried provisions. The scenes which ensue on these visits of bands of Indians for the purpose of liquor trade are beyond description. It is not uncommon for wives to be offered in trade for rum. They are so fond of the liquor that, although they know that they become poorer by taking it in place of useful articles, yet they say that they hope it will not be prohibited. Certain it is that if there were a law enforced against it on the British side of the line, the trade in buffalo robes and provisions would decrease considerably on the Saskatchewan. However, let us hope that such a state of things will not much longer exist, but that a law being enacted, it will be the duty of an Indian Commissioner and his agents to put a stop to this demoralizing traffic. All missionaries agree on this point, that they can make nothing of the Indians where liquor is in use, and I have been repeatedly solicited to use my best endeavours for its suppression. Moreover, the gentlemen of the fur trade, who deal directly with the Indians, would only be too glad to see the system of liquor traffic or "presents" entirely abolished.

*Mode of Life of Indians.*—In speaking of the mode of living of the Indians, we must separate those inhabiting the thickly wooded country from their brethren of the prairies; and taking first of all the thick-wood Indians, including the different tribes that extend over the whole country, except the plains to the south of the Saskatchewan River, they may be said to live much in the following manner.

*Thick-wood Indians.*—During the summer they move about by means of canoes, usually a few families together, living on the fat of the land, namely, waterfowl, fish, berries, &c., while fur taken at this season being of little value they live a rather lazy life. Before the end of the autumn they find their way to their separate trading posts, and then take a number of supplies required for the coming winter "in debt," the amount of which depends on the trader's opinion as to their hunting powers. With this they make off to the region of their intended winter hunting grounds, sometimes prosecuting a fishery before the setting in of winter. During the winter they form their tents in a more permanent manner, in order to resist the cold, and do not often shift their camps, from whence they trap, hunt, and gradually accumulate fur. Some keep a fishery going the whole time for their subsistence, but occasionally, on the failure of this and the scarcity of game, they are reduced to great straits for existence; cannibalism is, however, rarely heard of.

Some of the men may visit the fort during the winter for the purpose of obtaining a few additional supplies. When the rivers open in the spring they depend largely on waterfowl for their support, and make their way to the forts, where, if they have been successful in hunting during the winter, they pay off their debts, and procure ammunition and other requisites with the balance of their furs. It is customary also in the country around Lake Winipeg and the Saskatchewan to give each Indian a present of rum on his paying off his debt, and moreover (although I believe it is against the regulations of the Hudson's Bay Company) to sell him more liquor if he wishes it for his extra furs. I must say, however, that the gentlemen of the fur trade are in many cases driven to this practice by the competition kept up in some parts of the country by the petty traders.

*Prairie Indians.*—The life of a Prairie Indian is of a more free and independent nature. During the summer he roams about the plains following the buffalo, and living on them, and in the winter, camped usually in the shelter of woods, he still lives on buffalo, of which he often catches numbers at a time by means of the "pound." These Indians, although inhabiting the comparatively small portion of prairie country, outnumber all the other Indians scattered over the interior east of the Rocky Mountains. They live usually in large bands, seldom less than 40 tents, 120 fighting men, or 400 souls together. They exist entirely by the buffalo, the skins of which are dressed for shoes and other clothing, and also for their tents. They seldom eat anything but buffalo beef, and

accumulate the dried meat and grease of the animal, as well as the skins, for trade. They own numbers of ponies and dogs. When short of ammunition, tobacco, knives, or other necessities, they visit one of the trading forts, which, on account of the numbers of Indians who come in to trade at the same time, are surrounded by high stockades for defence in case of disturbance. Spirituous liquors are traded *ad libitum*, and the scenes of drunkenness and riot witnessed on the arrival of a band of prairie Indians are almost beyond description, suffice it in this place to say that the amount of well-watered rum which is given in exchange is of but slight value when compared with the provisions, skins, and horses obtained from the Indians. So well is the knack of dealing with Indians known by those engaged in the trade, that it is rare to hear of any serious disturbance. Guns, blankets, cloth, tobacco, ammunition, knives, &c. are obtained by these Indians at the forts, but they are not nearly so much dependent on the whites as the wood Indians before described.

*Numbers of Indians.*—According to the most reliable estimates, the number of wood Indians of all tribes east of the Rock Mountains, excluding Canada, is 20,000, while the prairie Indians trading on the Saskatchewan, Assiniboine, and Quappelle Rivers have been estimated at 26,000. This includes those who also trade on the Missouri, and live as much on one side of the line as the other; but deducting them, I think this estimate is considerably beyond the mark, and I regret that the returns of a census made by the orders of the Hudson's Bay Company during the winter of 1857 and 1858 have not yet reached this country, which would have allowed me to have given accurate returns of the different tribes. The Esquimaux, who are not included in the above numbers, are supposed to be about 4,000. Thus there are about 40,000 souls, whose welfare it would be but right to consider when making provision for the government of the country they inhabit.

There is but one treaty in existence with any Indians on the British side of 49°, and this was a bargain made by Lord Selkirk with the Chief of the Red River Chippeways, for the land on either side of Red River above what is known as the "Sugar Point," extending as far back from the river as "on a clear day a man can be distinguished from a horse;" while the Americans have made treaties and bought land to the very foot of the Rocky Mountains. But this system of treaty making with aborigines may be abused, and without doubt the payment of an annual sum and his removal to a distant locality can hardly be called a recompence to the Indian, who, if he goes not willingly, is forced to give way to the white man. If he could still live in the way in which he has been brought up, then the payment of beads, blankets, and other articles of Indian use would be a fair recompence; but with civilization closing in upon him these things only serve to help him to drag out a miserable

*Real Benefit.* existence in a (to him) miserable country. No, the permanent benefit which ought to be conferred on the Indian is, that as he cannot live much longer by the chase he should be taught to live by the soil. The Indians, although they are often called "wild untutored beings," when they do speak usually speak to the point; and as when travelling in the interior I took every opportunity of conversing with them on the subject of which they could give me the best information, namely, themselves, I shall here give some of their ideas on their present state and their wishes as to the future.

*Indian Talks.*—I may premise by saying, that in holding a "talk" with Indians, I always first plainly stated that I had been sent out by Her Majesty for the purpose of examining and mapping the country, and for inquiring into the state of the Indians of the different tribes; that the Queen had sent them no presents because she did not know whether they were good or bad people; and I usually stated that the reason of my travelling with so small a party was because I trusted to their honesty and good faith; at the same time explaining to them that in our country we had very large guns which would kill at a long distance, and that in one battle there were as often as many killed as their whole tribe numbered. I would add that I was sure Her Majesty would be glad to hear a good report of them, and if they had any messages for Her that I would take it down in writing, in which they have great faith. I made no promises of rewards for good conduct, or anything of that sort, but said that I should report what I had seen. I refused all presents of horses, robes, or other things, telling them that I could not take as I could not repay, for they always expect payment.

After the speeches were over we used to carry on a good deal of talk in questions and answers, which elicited much valuable information.

*State of Indians.*—There were very few who on commencing to speak did not mention that they were very poor, that they were very thankful to Her Majesty for thinking about them in the manner detailed in a portion of a speech given in Appendix II.

The Indians of the Saskatchewan have generally the idea that the British have a right to the country in which the Hudson's Bay Company trade, and they do not wish that it should come into the hands of others, although they are aware that the Indians on the American side receive payments for these lands, and in fact many of the Blackfeet, whose hunting ground is divided by the boundary line, and who actually receive the yearly payments, have told me that they do not wish payment for their lands, for they have the idea that the payments bring sickness amongst them. The Indians of the prairie are, however, opposed to the country becoming settled up like the Red River, which many have seen and all heard of. They would wish there to be plenty of wild animals, and that the traders (whom they consider to be under the immediate control of Her Majesty) should be made to pay them good prices for the produce of the chase. This, however, they know cannot last long, for year by year they see the animals decrease, and although they consider that they will last their time, and that by them they will be able to keep themselves in tobacco, ammunition, and other requisites, and have an occasional drinking bout, yet they know too well, as one man expressed himself to me, "If this continues our children cannot live;" and whereon I have said that in our country we were able to live independently of the chase by keeping domestic cattle, growing crops, making cloth, &c., I have



always been asked to use my best influence to have people sent out to bring up their children to this way of living.

*Missions.*—Many of them have seen missionaries, and some have, perhaps, derived Spiritual benefit from them, but as they say of them, “these praying chiefs tell us what we ought to do and sometimes “give us tobacco when we attend their church gatherings, but we cannot always live in one place “as they do, because we must hunt for our subsistence; but they can do so because they have goods “sent over the sea with which they buy the provisions which we furnish. If it were not for us they “could not remain here.”

This is true enough, and as these remarks have led to the subject, I will here notice the progress of missionary enterprise in the interior.

## B.—II.

### INDIAN MISSIONS AND SETTLEMENTS.

*Missionaries.*—The first missionary who entered Rupert's Land, Mr. West, was sent out by the Church Missionary Society in 1820. He established a mission at Red River Settlement for the benefit of Scotch settlers, half-breeds, and Indians. Since that time there have been many missionaries sent out by this and other societies, and they number at present—

Church of England	-	-	-	20
Wesleyans	-	-	-	5
Presbyterian	-	-	-	1
Roman Catholic, about	-	-	-	15

besides many native and other schoolmasters.

Out of the 40 clergymen one-half are at the Red River Settlement, where the greater part of their work is among the half-breeds and white residents, who, if left to themselves, would be well able, and, in most cases, willing to support their own clergy and schools. At Red River, however, the necessities and many of the luxuries of civilized life are to be had, besides which a regular postal communication being kept up with the United States, it serves as a sort of transition chamber in which the missionary, fresh from the refinements of home, may be somewhat prepared for life in the wilds. The remainder are scattered throughout the Indian country, from Hudson's Bay to near the Rocky Mountains, and from Red River to Fort Simpson on Mackenzie River, the established stations being marked on the map.

*Effects produced.*—The effects produced by the missions are not so apparent as from the missionary reports charitable subscribers would be led to suppose, when they see a gain of so many hundred Christians or a certain number of extra communicants over the year previous. For how many of these so-called Christians are even in outward form worthy of the name? I am sorry to say (but were I not to do so I should be courting approbation at the expense of truth) that there are but very few “Christian Indians” who do not still repose implicit faith in the conjuring tent and medicine man. Few, indeed, there are in civilized life who can or ought to be called real Christians. I will not comment on the merits or demerits of missionaries or of the system, but as the “light of Christianity” is so favourite an expression, I would ask how can it be expected that this light can be disseminated without the atmosphere of civilization.

At two places only has the domestication of the Indians been in the least effected, namely, Rossville near Norway House, by the Wesleyan Missionary Society, and at the “Indian Settlement” on Red River by the Church Missionary Society. At these the improvement is apparent; although the missionaries have neither the power nor the means of carrying out all their objects.

The fact of missionaries being by their position forced to trade and bargain with the Indians has a bad effect, for the Indians come to look upon them as traders working for their own benefit. And another evil which unfortunately cannot so easily be remedied is, when the Indians see a missionary of one persuasion working against one of another, they begin to think which of the two is to be believed, for each says the other is doing wrong.

*Indian Commissioner and Settlements.*—Taking into consideration all that has been urged, I would propose the appointment of an Indian Commissioner for the interior of British North America, whose first duty should be to travel through the country, visiting the different tribes of Indians, and selecting certain locations in the more habitable portion for Indian agricultural settlements; although, with some knowledge of Indian character, he should be at the same time in no way connected with the Indian by blood, but agents whom he would employ might be half-breeds or others used to the ways of the country. A certain sum being placed at his disposal, he would proceed to establish agencies at the different points selected, and in carrying them out he should select at first (according to the means at his disposal) one or two places where the buildings and other requisites of the agency should be completed, and the agricultural implements and stock be supplied as soon as possible; after which the staff for the agency should be located. This would probably consist of a superintendent who understood farming; a school teacher, a carpenter, and perhaps a blacksmith, with two or more men used to farming and general work. Missionary societies should be invited to establish missions at these settlements, a certain portion of land being allotted for that purpose. I would, however, strongly recommend no favour being shown to any particular sect.

The Indians of a certain district would be encouraged to settle on lands which would be regularly laid out on the reserves, and they would receive help from the agency in putting up buildings, &c. The domestication of old persons, who all their lives have been accustomed to roam at large, must seldom be looked for; but the great point is to get them to live about or frequently to visit the agency, so that the children (whom they have great objection to part with) may be instructed, both in the school and farm or workshops. Sunday should be given up for religious instruction and

recreation, and the superintendent should be allowed in no way to interfere with the missionaries of whatever denomination. A regular scale of payments should be adopted, and every Indian should receive remuneration for any work done on the agency.

Every exertion should be used to gather a large amount of stock as early as possible, because many of the more aged individuals might take to such work as cattle keeping, and thereby living about the place allow their children to be instructed. A medical man should be under the orders of the Commissioner, who could travel about, visiting the Indians for the purpose of vaccinating them and giving medical advice.

*Indian Reserves.*—I would recommend that the different portions of country to be kept as Indian reserves be at once defined, and due notice given that any persons besides Indians settling on these tracts would, when required, have to give up possession without remuneration. Moreover, in order to prevent Indians being dispossessed of their lands, a law should be enacted preventing the transfer of land from the Indian to the white man or half-breed.

*Treatment of Indians.*—I have previously mentioned (Appendix II.) that although I travelled among large numbers of Indians, I had never any difficulty with them. This I attribute mainly to having always appeared to repose entire confidence in them, and never attempting to pass through any part of the country unseen, for the Indians are such adepts at stealing, deceiving, and other under-hand practices, that if recourse be had to these measures, they are only too ready to follow up to your disadvantage; but on the contrary, deal with an Indian openly, and trust to his honour, ("there is honour among thieves,") and you may usually rely upon his acting fairly.

*Missionary System.*—In the early pages of this section I have endeavoured to give a faithful picture of the present state of the aborigines, while in the latter part I have set forth (but necessarily omitting numerous details) my own views of the manner in which they may be most benefited, for I am inclined to the opinion that the wild man is not altogether incapable of civilization; but at the same time, from the numerous examples of the objects of the present missionary system which have come under my notice, I am convinced that scattering abroad the seeds of Christianity without simultaneously preparing the unbroken land for its reception is of little avail. Some seeds of course falling in favoured spots, spring up and bear fruit, but these are only exceptions, which do good only so far as to show us what the soil is capable of producing. Many of the industrious and self-denying missionaries would repeat these words, but the fault does not rest with them, they carry out all that their means will allow, and can only look to a change in the system for the advancement of the cause.

I feel sure that, owing to the prevailing opinion of missionaries and missionary work, some of my statements will not be received without hesitation, but I must simply say, that in the case where the interests of many are at stake in opposition to the prejudices of a few, I have only endeavoured to present the picture in an impartial light. I might have entered into details and produced examples in order to substantiate these statements, but this, while serving to increase the volume of an imperfect yet laborious compilation, would only have "convinced against their will" those who would "remain of the same opinion still." I therefore close the remarks with the expression of a wish that some may be induced to look into this matter, so intimately connected with the calls of humanity, religion, and justice.

### B.—III.

#### WHITES AND HALF-BREDS.

*White and Half-breed Inhabitants.*—I have thus far spoken only of the aboriginal inhabitants. There are yet two other classes, the whites and the half-breeds; the former mostly Orkney and Scotch settlers, and their descendants at the Red River Settlement, and officers and men who have been or are at present in the fur trade; while the latter are the offspring of the former and Indians, as well as their descendants, and being of all shades, from the almost pure red man to the white, are a motley population. Altogether the white and half-breed population of the interior numbers about 12,000, of which one-half are at Red River. The half-breeds, who constitute by far the greater proportion, being about five to one, are divided into two classes, generally called in the country French and English, the former being descended from French Canadians, and the latter from Scotch and English. Cree is the mother tongue, but almost the whole also speak either Canadian French or English. The occupation of most of these people is hunting and voyaging, the first on their own account, and the latter in the pay of the Hudson's Bay Company or Red River merchants. They are remarkably adapted for either of these employments, but there are very few who make good farmers. The old Scotch settlers and their descendants are the real farmers at the Red River, where the soil being excellent, the only drawback to agriculture is the short and sometimes interrupted duration of hot weather. The half-breeds are naturally intelligent, and are mostly very apt at picking up any handicraft, their principal failing being instability of character.

*Military Force.*—Should there be occasion for a military force to be kept up in the interior, an efficient corps of mounted troops could be raised at Red River, which, for rapid movements and reconnoirring or outpost duty in a country where the means of subsistence for man and horse have to be drawn from the wilderness, it would be particularly adapted, while it would be difficult to find a class of people more suited to this kind of service than the half-breeds. The raising of such a force on an emergency would be a task of very short duration, as the general fire-arms in use in the country are all of one calibre, and a large store of ammunition, including ready-made bullets, is always on hand.



## C.—I.

## DEVELOPMENT OF RESOURCES.—MEANS OF COMMUNICATION WITH THE INTERIOR.

*Routes to the Interior.*—The several lines of internal communication with the more northern parts of the continent of North America being intimately connected with the development of the resources of the country under consideration, I will here enumerate them, commencing with the north. We find a river of the first class, the Mackenzie, flowing into the Arctic Sea; on the west the Columbia's branches carrying the western waters from eleven degrees of latitude of the Rocky Mountains to the Pacific. Again, from the Gulf of Mexico, the navigable waters of the Mississippi and Missouri reach the latitudes of 45° and 48° north, in the very centre of the continent, and the connected chain of the Great Lakes extending one thousand miles west of the Atlantic sea-board, while the north-east is penetrated deeply by the great inland sea of Hudson's Bay. But setting aside the Mackenzie on account of its Arctic situation, and the Columbia, which, although serviceable to the North Pacific States of the American Union, can have but little influence on British territory, there remain four points to which the communication from the civilized world is by water, and which we may call bases of approach to the interior of British North America. They are Hudson's Bay, Lake Superior, the head of the navigation of the Mississippi, and the most northern part of the Missouri. From the first three of these connexion with the interior has been hitherto maintained, and although a large Indian trade has been prosecuted on the Upper Missouri, yet, owing to the absence of any settlements in that region, it has not extended into the British possessions. It is almost needless to say, that external communication by steamboats can be kept up during the entire summer season with the three southernmost of these bases, while the impediments offered by ice to the navigation of Hudson's Straits and Bay precludes the use of that base for more than from six to ten weeks of the latter part of summer and autumn. Thus, although it is principally by means of that route that the fur trade has been pushed to its present extent, yet we can hardly look forward to its being used to a much greater extent in future. We have, therefore, three bases left, which, with their internal and external connexions, are of the greatest importance to the future of the country under consideration. I shall at present, however, only describe the routes as hitherto in use, leaving the considerations with respect to the encouragement of any particular channel for the next section of this report.

*Hudson's Bay and Lake Superior Routes.*—The ordinary boat route between Hudson's Bay and Lake Winipeg, and the boats in use on it, has been described (see Appendix I.), and in its present state has been used for many years as the principal outlet of the interior. The other water connexion, usually called the "Canoe Route," has been fully reported on by the Canadian expedition in 1857 and 1858 (see Parliamentary Paper, dated June 1859). This was in frequent use at the time of the competition between the Hudson's Bay and North-west Fur Companies, but from the numerous obstructions precluding the use of any craft but bark canoes over a great portion of it, it has latterly fallen into disuse, except for personal conveyance. The distance from Lake Superior to Lake Winipeg is 560 miles. I shall have to speak of a modification of this route proposed by the Canadian expedition in its proper place.

*Red River and St. Paul Route.*—The third means of communication with the civilized world, although not through British territory, yet having been for some years extensively used by British subjects, who carry on by its means a yearly augmenting trade, is entitled to a description here. This is the overland route between Red River and Saint Paul on the Mississippi, and may be said to consist of two regularly frequented trails, although much of the country being of an open character, it is not necessary always to follow these trails. The one by the east is usually called the "wood road," and the other, keeping more on the open prairie to the west of Red River, is called the "Prairie" or "Plain Road." Small parties have usually followed the former, on account of the hostility of the Sioux Indians, who frequent the country more particularly to the west of Red River. Both these trails will be seen marked on map.

The mode of transport employed for merchandise is by means of light oak carts drawn by single horses or oxen (see "Means of Transport," c. iv.), and the country being in a state of nature, the travelling is so rough that the roads are not heavy nor is the progress rapid. The distance, which differs little by either trail, is from Fort Garry to Saint Paul about 530 miles, which distance is accomplished in from three to four weeks, according to the loads and state of the country. It has been usual for a large caravan of traders to leave Red River Settlement from the 1st to the 10th of June annually, and another trip is usually made in the fall of the year.

Besides this land route there is a way of getting by canoe up the Red River, and by a portage out of Otter-tale Lake on to Craw-wing River flowing into the Mississippi. And in bringing the machinery and boiler for a steam mill from the United States in 1856, a "skow" or flat-bottomed boat was constructed on the upper part of Red River, by which it was transported to the settlement. There was, however, this season, a small steamer plying on Red River, which will facilitate the means of transport at the northern end of the route, by providing water carriage for nearly half the entire distance.

I will now pass on to give a sketch of what has been achieved with the means of communication just described, and in commencing I would draw attention to the fur trade.

## C.—II.

## THE FUR TRADE.

The fur trade commenced on the shores of Hudson's Bay nearly two centuries since, and gradually extended inland; but when the North-west Company pushed their way from Canada into the interior, it gave an impulse to the efforts of the Hudson's Bay Company, and during the competition which lasted till 1821, the country was explored and the trade pushed to great extent. Since the union of

the two Companies, the trade has been successfully, although more quietly pursued, and notwithstanding that within the last few years the proximity of an American market has induced a number of the inhabitants of the most southern portion of the interior to traffic in furs, thereby raising the prices in that part; yet the trade carried on by the Hudson's Bay Company in other districts has altered but little, save in its extension northward; and as but little is known of the conduct of this peculiar trade, I will give some description of it.

*Hudson's Bay Company.*—The fur trade as carried on by the Hudson's Bay Company over the whole northern part of the continent, from the Atlantic to the Pacific, is on a most uniform and comprehensive system. The whole territory is divided into five departments, in each of which there is a certain number of established posts. One of these is the depôt where the goods for the trade are received from England by ships, and thence distributed among the whole.

Departments.		Depôt.	No. of Posts.
1. Northern	-	York Factory, Hudson's Bay	- 69
2. Southern	- -	Moose Factory	- 42
3. Montreal	- -	Lachine	- 22
4. Oregon	- -	Fort Vancouver, W.T.	- 16
5. Western	- -	Victoria, V.I.	- 15

Making altogether, exclusive of flying posts, 164 regular establishments, of which 16 are on American ground, 37 in Canada, and 14 in the province of Columbia and Vancouver Island. The Indians trading at three places are about 150,000, including young and old.

*Pacific Departments.*—The two departments in the Pacific are now kept quite distinct from the remainder, there not having been for several years any regular communication kept up across the Rocky Mountains.

*Eastern Departments.*—Lachine, near Montreal, the residence of the Governor of the territories, forms the head-quarters of all the trade on the east side of the Rocky Mountains, and thither the accounts of the separate departments are transmitted yearly. Of the Montreal department, which carries on the trade in Canada, I know nothing; while of the southern department, having its depôt at the southern extremity of Hudson's Bay, I know simply that a vessel of about 500 tons sails annually from England to this point, with men, goods, and provisions for the prosecution of the trade, carrying back to England the fur returns. The country in which the trade is prosecuted from thence is generally thickly wooded, and the larger animals not being abundant, many skins are applied for the use of the servants from the northern department, while salt meat and flour are used in place of pemmican.

*Northern Department.*—The northern part, in which it has been my duty to travel, and which is the country more particularly included in this report, is by far the largest in extent as well as the richest in peltries; and as a knowledge of the internal economy of this will give a general idea of the whole, I shall proceed to describe it.

*Supply of the Depôt.*—A ship annually leaves the Thames in the month of June, having a very mixed cargo, including blankets, materials for and articles of wearing apparel of woollen and cotton manufacture, hardware and earthenware, beads, ribbons, pipes, fire-steels and other miscellaneous articles; also tea, coffee, sugar, rice, raisins, wine, tobacco, salt, flour, gunpowder, shot, ball, fire-arms, &c. While another is usually chartered by the Company for the conveyance of extra supplies, and the property of Red River merchants and the missions. These two vessels, depending on the state of the ice in Hudson's Straits and the Bay, generally arrive at York Factory towards the middle of August. Here the discharging of the cargo by means of schooners (as the ship cannot come within five miles of the fort) is carried on as rapidly as possible, and ballast of stones having been taken in, one ship only is loaded with the packs of furs, skins, and robes, and they usually, if possible, get away by the middle of September, in order to have light nights for the navigation of Hudson's Straits.

Thus is the depôt for the interior supplied yearly with necessaries for and relieved of the returns of the Indian trade; but to provide against the consequences of any unforeseen accident preventing the arrival of the ships, there is always a twelvemonth's extra supply on hand there.

*Economy of the Interior.*—The economy of the interior is really nothing more than the general system carried out in particulars.

This department is divided into ten districts, each of which is under the superintendence of a chief factor or chief trader, as the case may be, who, as in any military system, is responsible for his whole district, taking care that the work is carried on properly by clerks or postmasters in charge of the several establishments. He has, if the district be large, one clerk employed as an accountant, whose duty it is to collect and arrange the returns and accounts of the different forts.

The persons in the employment of the Hudson's Bay Company are a mixture of Europeans and half-breeds, those for the higher grades entering the former as apprentice clerks, and the latter usually as apprentice postmasters, but each have the chance of rising to the office of chief clerk, which is the highest grade to which a regular salary is attached, and from thence obtaining a commission, on which he becomes a partner in the fur trade, first as chief trader, on a certain percentage, and afterwards as chief factor with a higher share, and after serving a certain number of years, a retiring pension is allowed him.

All promotions and appointments, as well as the general arrangement for the prosecution of the trade, are under the control of a council of commissioned gentlemen collected from different districts, who meet every summer at Norway House, at the north end of Lake Winnipeg, headed by the Governor of the territories, who makes a long voyage annually from Montreal for that purpose. A standing account is kept up between the "fur trade" and the "shareholders" of the Hudson's



Bay Company, and a regular yearly balance struck, out of which the several proportions are allotted.

*Summer Voyaging.*—The brigades belonging to the several districts being on their way to the *dépôt* at the time of the council just described, the officers in charge proceed with them, and discharge their boats of packs of furs, the proceeds of the previous year's trade. Here the voyagers are paid their wages in supplies of any kind which the *dépôt* affords, taking advances on account of the next year's wages.

According to a demand (so far as allowed by council) made out the preceeding winter, the supplies for the different districts are given to those in charge, who as soon as everything is prepared start with their boats on the return voyage to the interior, arriving at their winter quarters at different times in the fall of the year, according to the distance, which in most cases amounts to many hundred miles. The return of the voyagers to their wives and families, and the initiation of the "green hands" into the realities of Indian life, afford an opportunity for a slight festivity, and each man is served with a "regale" of liquor.

*Wintering.*—The work of preparation for winter now goes on; "fall fisheries" are established, each party is despatched to its wintering post with a supply of goods for the trade, the fort is put in repair, houses "mudded" (pointed), and other work got through; while the Indians, who have collected in expectation of the arrival of the boats, are furnished with numerous supplies for the coming winter, on account of the furs they will probably bring in in the spring. By the time all this is over winter sets in rapidly, the lakes and rivers close with ice, snow covers the ground, and the ordinary winter occupations of the inmates of the forts, such as boat-building, hauling fire and building wood, fetching provisions with dog trains. Making pemmican, sorting furs, and occasional trading with Indians are taken up and continued with little intermission, save a dinner at Christmas, a dance on the coming-in of the new year, and the passing of the ordinary "winter packet," or express, bringing letters perhaps a year old, and taking away others which have been in course of concoction for two or three months, and again all is quiet until the welcome arrival of the "first goose."

*Spring.*—All is now activity, and successful hunters make the returns of the chase pay well for the expenditure of ammunition. Then the river opens, the furs are pressed and bound in packs properly marked, and on the arrival of the boats from "up river," their numbers are augmented, and bidding adieu to their wives and families, the voyagers and gentlemen, with the exception of a few who remain "inland," start on their summer voyage of perhaps half a year's duration.

*Hudson's Bay Company Service.*—Such is the ordinary yearly life of those engaged in this peculiar trade, and when it is considered that the trading establishments scattered over their extensive region are in the same relative proportion as if in Great Britain, there was one at London, another at Plymouth, another at Liverpool, and the fourth at Edinburgh, with no roads connecting them, and that many of these so-called forts consist of one or two log houses, where a single European is located with two or three half-breeds only, on whom he has to depend for assistance in case of the natives becoming troublesome, I shall be believed when I say that in this service are to be found men of the greatest self-reliance, who are at any time ready to face almost insurmountable difficulties; many there are who have been reduced to the greatest straits for means of subsistence; others again have been exposed to numerous dangers by land and water, and yet there are few who when they return to civilized life do not wish themselves back in the dreary north.

*The North.*—There are some exceptions to the general statement which I made with regard to the boats of each district going to the *dépôt*.

This is not the case with either the Athabasca or Mackenzie River brigades, the former of which only comes to Norway House, where they find their supplies, while that from Mackenzie River and the far north is met at "Portage la Loche" by a brigade specially employed, with whom they exchange cargoes at this nine mile portage.

*Traffic.*—At Red River the trade is carried on by money, paper and coin; an Indian or half-breed bringing in fur is paid in cash for it, and he uses this cash in the purchase of goods. In other parts it is direct barter, article for article, or, as is much the same thing, the furs and goods are reckoned at so many "made beaver" or "skins," and the goods are priced by the same unit of value, which exists only in imagination. Spirit is kept up in the trade, first, by the officers being partners, and secondly, by a system of competition fostered by the returns of the several districts, priced according to a fixed tariff (not necessarily the home prices), being annually laid before the council, and from which the members often judge of the capabilities of a man by seeing whether or not he has made a "good trade."

*Furs.*—I need not here enter into the details of the fur trade, suffice it to say, that the goods allowed the Indians for the furs are in proportion to the European prices, and it is not a fact, as has been stated, that higher payment is given for those less valuable, in order to preserve others. The Indians being very indolent, are, I think, generally fairly paid for their produce. The furs in greatest demand are the marten or sable, fisher, mink, otter, beaver, musk-rat, bear, lynx, badger, ermine, wolf, and fox, of which the variety called black or silver fox will sell sometimes in this country for 50*l.* per skin. There is, moreover, a considerable trade now carried on in buffalo robes, besides which goose quills, isinglass, castorum, and oil are imported into England. Most of the "robes" go to the American market, but there is annually a sale of furs in London, in which the greater part are brought up by continual dealers.

*Competition.*—I have mentioned before that although the Hudson's Bay Company have nominally the exclusive trade of all the country drained by the rivers running into Hudson's Bay, yet there is a certain amount of opposition in that part bordering on the state of Minnesota, caused by American traders having pushed up there from the Mississippi. This is carried further into the country by

half-breeds, who, from being natives, claim the right of trade, and during winter make trips to or live in certain parts of the country near Lake Winnipeg and the Saskatchewan, and there trade with the Indians, using a great deal of bad spirits obtained from the United States. These people take their furs to Red River Settlement; but owing to the Hudson's Bay Company allowing as much as the American and other merchants, and within a little of the prices at Saint Paul, distant over 500 miles, the greater part fall into their hands, although, of course, there is not so much profit on them as if obtained direct from the Indians.

This competition, although it obtains higher prices for the Indians, does not benefit them, for it introduces spirits, the temptation of which they cannot withstand. But were the Indian liquor traffic prohibited, as it ought to be, then competition would be a present benefit to the Indians by allowing them higher prices, and a future benefit by destroying the fur trade of the southern portion of the country; as until this is accomplished little progress will be made in agriculture by them, or by the large majority of the half-breeds.

*Provisions.*—The supply of provisions required for the greater part of the voyaging by summer and winter travelling in connexion with the fur trade is mostly drawn from the buffalo; pemmican or dried meat being the usual food on such occasions for all the southern part of the country. But in the district of Mackenzie's River the numerous deer and other animals furnish their contributions towards the support of man, so that it is erroneous to suppose that the trade could not be carried on in the north without buffalo.

In the buffalo country fish is little used, but in the woody districts it constitutes, together with potatoes, grown at some posts, the staple article of food. Flour, which is supplied from England and Red River Settlement, is not much used in the upper parts of the country, on account of its cost of transport. At many forts the inmates would live far better than they now do, did they cultivate the soil to a greater extent, but they are usually of so indolent a nature that rather than employ spare time in that way they go without those things which are looked upon as necessities in a civilized country. Thus, with the exception of Red River, where many live by it, agriculture is almost unknown. In the more northern and eastern parts of the country of course it is impossible.

In describing the fur trade, I think I may say that I have included all the resources of the country that have as yet been developed, with the exception of what has been done at Red River in the way of farming; so that I will endeavour to give some idea of the state of that settlement as it now is, omitting the numerous struggles of the early settlers in contending with the many natural and other obstacles.

### C.—III.

#### RED RIVER SETTLEMENT.

*Origin.*—Those interested in the rise and progress of this distant colony have but to peruse a most complete history of it by the late Alexander Ross, entitled "Red River Settlement." I shall here simply state that the idea originated with the Earl of Selkirk, who, obtaining a tract of territory from the Hudson's Bay Company in 1811, sent out the original Scotch settlers, and entered into treaty with the Indians of Red River.

Among the difficulties with which the settlers have had to contend, I may mention the visitation of grasshoppers in certain years, inundations caused by the rise of the river, the difficulty of procuring stock and implements, and the want of a market. But notwithstanding these and other disadvantages, including climate, under which the inhabitants have laboured, there at present exists at Red River a thriving British community of whites and half-breeds, numbering about 6,500 souls, separated from the most advanced point of civilization by 400 miles of wilderness.

*Present State.*—Red River Settlement is neither a city, town, or even a village, but, as the name indicates, a settlement consisting of a straggling chain of small farm establishments, extending for a distance of forty miles along the banks, but mostly on the west bank of the Red River of the north, the dwellings being from fifty yards to a mile apart, while at intervals along this line are a few churches and windmills, besides two establishments of the Hudson's Bay Company, built in the form of forts, one at the junction of the Assiniboine with the main river, and the other twenty miles below. On the north bank of the Assiniboine also, which has a general east course, the settlement extends about 25 miles up, and about 50 miles further is another small collection of homesteads, usually called "the Portage."

*Population.*—From the latest census (1856) it appears that there were then 1,082 families, of which 816 were natives of the country, the remainder belonging to the United Kingdom and Canada. The French Canadians and their offspring, usually called "French half-breeds," who number about one-half of the whole population, are confined mostly to the Assiniboine and Red River above "the Forks;" the Europeans and their descendants, pure and mixed, being located between the two forts, and a couple of miles below the lower one; while the so-called Christian Indians, numbering about 400 or 500 souls, are confined to the lower part of the river, usually designated the "Indian Settlement."

*Religion and Occupations.*—The settlement is divided into parishes, and there are nine churches and seventeen schools; the French part of the population being generally Roman Catholics, while the English and Indians are Episcopalians and Presbyterian. Not one-half of the population are farmers, for there are but 400 barns for the 900 houses, accommodating above 1,000 families, the remainder being hunters, who may be said to live entirely on the buffalo and the fur trade. These are, for the most part, French Canadian half-breeds, whose occupations are well exemplified in the small number of farms existing in the parishes which they inhabit, for while the population is equal, here are but ninety barns compared to the 230 in the remaining parishes.



*Land and Productions.*—The country is very level, and on the west generally open. There is a considerable amount of swamp, but in the dry parts the soil is well adapted for the growth of cereal and other crops, and naturally supports a rich growth of the different grasses. The trees are generally small, but there is fine oak and elm along the borders of the river, and timber suitable for building purposes to the north-east of the settlement. Firewood, of which large quantities are required during the severe and lengthened winter, has now to be "hailed" a considerable distance, or "rafted" down the rivers. Good limestone for building exists. Wild land is sold by the Hudson's Bay Company, in lots with from two to four chains' river frontage, at seven shillings and sixpence per acre.

*Government.*—There is a Governor of the Settlement, styled "Governor of Assiniboya," appointed by the Hudson's Bay Company, who is assisted by a council composed of influential inhabitants, holding their commissions also from the Hudson's Bay Company. Quarterly, general, and petty local courts are held, in which trial by jury is recognized. Public works, such as bridges, and what little road manufacture is done, are paid out of the revenue arising from duties levied on certain imports, fines, &c.

*Trade and Occupation of Inhabitants.*—There can be said to be no distinct trades practised at Red River, every man being his own carpenter, smith, mason, &c., and the women taking the clothing department. There are a number of wind flour mills, but all the millers have other occupations; but there is one steam mill imported from the United States, which is kept pretty continually in operation, at any rate during winter.

Whiskey is manufactured; leather is roughly tanned, but, as with the making of beer, simply for home use. Sugar is made from the maple, and salt, as has been before mentioned, is manufactured on Manitoba Lake, but not at present in sufficient quantity for the supply of the country. The buffalo hunters and voyagers are absent from the Settlement most of the summer, and owing to their improvidence, are often reduced to great straits from the want of provisions during winter.

*Agriculture.*—Farming cannot be said to be carried on to a great extent, when the whole number of stock is only, cattle 9,600, sheep 2,200, and pigs 5,000, and the amount of land under cultivation is 8,800 acres. The agricultural implements not constructed at the settlement are mostly obtained from Saint Paul on the Mississippi, and a few reaping machines have been already introduced.

Farming operations comprehend the growth of wheat, barley, oats, Indian corn, and potatoes, the manufacture of cheese and butter, and the keeping of cows, horses, pigs, and sheep, besides gardening operations for the culture of turnips, onions, peas, cabbage, rhubarb, radishes, mangle carrots, hops, pumpkins, and melons, which all appear to thrive in ordinary seasons. The periodical visits of immense swarms of grasshoppers, who eat down every green thing, is a source of great annoyance to the farmers of Red River, as well as in some parts of the state of Minnesota.

*Growth of Crops.*—First, in respect to the growth of wheat, the soil seems particularly well adapted, but owing to the climate it is occasionally caught by the early frosts. Large returns are obtained from new land, sometimes up to 40 bushels per acre, and the soil will bear cropping for many years in succession. Barley and oats do well, and are never damaged by the frost; but Indian corn is sometimes destroyed. The green crops flourish; potatoes, turnips, and onions attaining very large size. Melons are said to come to maturity in the open air.

*Stock Farming.*—In regard to stock farming, the greatest drawback is the length of winter, owing to which so much hay is required for the subsistence of the animals; the usual allowance being five loads per ox and 10 per horse for the winter months, but the former feeds also on straw. The hay is cut off the swamps, where it is met with of tolerable quality, in great abundance; but for this as for other farming operations there is always a great scarcity of labourers, on account of the absence of the hunters and voyagers from the settlement during summer, as well as from the natural dislike of the natives to any steady employment.

Sheep thrive well at Red River, where there are but few wolves, owing to there being a head money. Pigs do remarkably well, and if turned out where there are oak woods require no looking after.

The cattle during summer roam at large at the back of the cultivated land, where they find plenty of excellent pasturage, but owing to the annoyance caused by the "bull dogs," mosquitoes, and other flies, they generally during summer collect in the smoke of smouldering fires which are made for their protection, but in the fall wander off and are often not seen for weeks. The cows are milked regularly twice a day.

It is usual at Red River to keep the cattle housed and fed during winter, but as cattle sometimes on the Saskatchewan remain out all the winter in the same way as horses, I think, in the event of stock farming being carried on to any extent, herds of cattle might be wintered out in sheltered situations, with the assistance of a little hay, which would be cut in the previous summer off the swamps in the tract of country where it was proposed to winter the cattle; and the animals would be kept grazing in other parts until the severe part of the winter; and whilst speaking of stock farming, my opinion is, that the country to which I am now calling attention is not ill adapted for it, while the natives would be more inclined to take to a pastoral than an agricultural life. As it is as present at Red River, many cattle and horses are lost every winter from the people not laying in a sufficient stock of hay.

The Hudson's Bay Company now farm to a considerable extent, and since the arrival of a Company of Rifles in 1857 have imported a number of oxen from Minnesota.

*Farming Operations.*—The commencement of farming operations depends altogether on the progress of the season, but it is seldom that wheat sowing is commenced before May, and it is usually cut before the end of August. The cutting of hay on public land is not allowed by law to be commenced before the 20th July, so that every one may have an equal chance.

*Growth of Vegetables in other Parts.*—So much for agriculture at Red River, but as a little farming and gardening is done at some of the forts and mission stations, I insert the following information,

which may be of use in comparing one part of the country with another; I will premise that the potatoe disease is unknown.

Barley and wheat thrive on any part of the Saskatchewan, but the latter sometimes does not ripen if grown in low situations. All the ordinary vegetables of a temperate climate come to perfection on the Saskatchewan, potatoes and turnips growing to a very large size.

At the north end of Lake Winnipeg, barley, potatoes, onions, carrots, turnips, peas, and pumpkins flourish in the open air, and melons can be forced. At York Factory white turnips grow, but not of large size.

At Churchill on Hudson's Bay potatoes have been tried, but they grew no larger than musket balls.

On Holy Lake, latitude 55° N., long. 95°, potatoes do not always attain full size. Much, however, depends on the situation, for at Norway House those planted near the woods have been frost-bitten, while others in open ground were not.

Barley is grown as far north as Fort Simpson on Mackenzie River, latitude 62°, but this is owing to its westerly situation giving it such a high summer temperature. (See Climate, Section A.)

It is Sir John Richardson's opinion that the cultivation of grain could be carried out sufficiently to support settlement as far north as Peace River.

*Exports.*—With the exception of furs, the exports from Red River amount to very little.

A small amount of beef, pork, flour, butter, and cheese being supplied to the Hudson's Bay Company, cattle and horses have been exported to the United States, but latterly the former have been imported.

*Imports.*—Besides the large quantity of merchandise annually imported from England by way of Hudson's Bay, a considerable traffic has during the last few years sprung up with Saint Paul on the Mississippi, and besides dry goods, hardware, agricultural implements, groceries, ammunition, &c., a large quantity of whiskey is annually brought into the settlement, both for the Indians' trade and home consumption; and I have not yet heard that any steps have been to require all engaged in selling spirituous liquors to be provided with a licence. Horses and cattle for the improvement of the breed have been imported from England as well as from the United States, whence the first stock was procured by the early settlers.

*Mail Service.*—A bi-monthly postal service is kept up the whole year by the United States, between the Mississippi and a small settlement of fur traders and half-breeds near the 49th parallel, with which a connexion is kept up from the Red River Settlement, so that letters can be received from England within the month, but the usual term is six weeks. Another mail route was opened during the summer of 1858, between Canada and Red River Settlement, and was kept up during most of the following winter, and is, I believe, again in operation; but owing to the very great distance through unsettled country, the delay to letters going by this route is so great that few are sent by it.

There is no regular internal mail, but the Hudson's Bay Company forward letters and small parcels by their brigades of boats and winter express to their different ports and the mission stations free of charge.

*American Settlements near the Boundary.*—It is supposed by many that there is a considerable American settlement and military post near the international boundary on Red River; this, however, is not the case, there being only about a dozen loghouses where Red River crosses the boundary, occupied by traders and half-breeds, while the settlement of Saint Joseph, commonly called "Pembina Mountain," about thirty miles to the west, contains about one thousand half-breeds and Indians, the chief occupations of whom is the chase.

#### C.—IV.

##### MEANS OF TRANSPORT.

*Water Transport.*—The craft in general use throughout the country are canoes and boats, the latter as described (Appendix I.), while the former are made of birch bark from 12 to 28 feet in length, the largest carrying 2,300 lbs. of cargo, worked by eight men, and capable of being carried when empty by two. Canoes of larger size are, however, used on Lake Superior, but are not adapted for the more intricate navigation of the interior.

With the exception of the route between Lake Superior and Rainy Lake, the 30 feet keel boats are in general used for the transport of merchandise, and have many advantages over canoes, where the portages are not over long or the navigation very intricate. Canoes made out of solid timber, usually called "dug outs," are in use at Red River, being very handy as crossing boats, for they require no care. Canoes formed of the hides of buffalo are also used on the Saskatchewan for descending the stream loaded with provisions or robes, and being easily constructed of the materials always at hand, are often used in crossing rivers when travelling. A canoe of this sort, made from buffalo skins and managed by two men, will contain about 2,100 lbs. or one-fourth of the cargo put in a boat when going down the stream. Flat-bottomed "skows," made of rough plank and caulked with Indian leather and grease, are also used for descending rivers with large canoes.

The cost of boat transport, including portages, is on an average one halfpenny per 100 lbs. per mile, or one shilling per diem.

*Land Transport—Carts.*—The land transport throughout the whole of the Red River and Saskatchewan country is performed during the summer season by light carts of home manufacture, drawn by single horses or oxen, the load drawn by the former being usually 600 lbs. for a long trip, and the latter, which is harnessed by means of a collar (something like a horse collar put on upside down), hauls about 900 lbs. The rate of travelling with loaded carts, including stoppages, is from 20 to 25



miles a day, and when following a beaten trail there is usually but one man to every three carts. The animals are without shoes, and live entirely on the pasture found by the way. The Red River carts, in the manufacture of which no iron is used, are certainly well-adapted for the mode of travelling in use, being easily "man-handled" at creeks, bogs, or other difficult places, and being constructed entirely of wood and with little extra boarding about them, they float well and offer little resistance to the current in crossing rivers; besides which, the wheels are useful for the formation of "skows" in which to ferry over the baggage; but at the same time carts are in rough travelling very severe on the animals, as every jolt of the wheels is communicated to them, and there is in addition always a weight on the backs, frequently the source of sore backs. The cost of this travelling is, perhaps, a little more than by water.

*Waggons.*—The Red River people have a great objection to waggons, owing, I fancy, to a dislike of the American waggons in use in Minnesota, which are of that narrow wheeled and neatly finished kind in very general use in the North-western States, which is ill-adapted to travelling in a rough country, where swamps are numerous and iron and smiths unknown; but, perhaps, more particularly because they have always used carts.

It being generally admitted that two oxen hauling by the yoke will do twice as much work than if working separately, I would recommend the construction at Red River of waggons made on the same principle as the carts, having perhaps but one or two pins of iron in their construction, the wheels of which should be high and rather broad in the felloes, which would enable them to surmount obstacles and pass over soft places with tolerable ease. The only drawback that I can see to the use of waggons, causing a considerable diminution in the expenditure of horse and ox flesh, is, that more men would be required to extricate a waggon than a cart in difficulty; but then it must be borne in mind that in a train of waggons the drivers would not be so far separated as at present, and the help applied to one waggon would be equivalent to that applied to four carts.

*Travails.*—The use of "travails," both horse and dog, is general among the Prairie Indians, and consists in the animal having to drag a load, supported on two poles, the larger ends of which trail on the ground behind, while the others cross over the back, and are made fast to a rough pad and breast strap.

*Sleds.*—In winter sleds are used; those for beaten tracks with horses or oxen being formed with runners, while those for dog travelling and single horses away from civilization are what are termed "flat sleds." The loads are about the same as for carts.

#### D.—I.

##### FUTURE GOVERNMENT AND COLONIZATION.

*The Interior.*—Having in the foregoing pages attempted a general description of the nature of the country, inhabitants, natural productions, climate, and state of civilization of the interior of British North America, I shall now proceed to offer a few suggestions having reference to the future government of that territory, founded on some knowledge of the wishes of the present inhabitants, as well as with a view to the strengthening of British power and the advancement of Christianity and civilization.

*Present State.*—The whole interior, which has been before defined, is virtually under the government of the Honourable Hudson's Bay Company. But since the expiration of the licence in May 1859, the part now in their hands (and for anything yet proved to the contrary, the property of this Company by Royal Charter) is that portion of which the waters run into Hudson's Bay, known as "Rupert's Land."

I have previously shown that there exists in the heart of this territory a community who, mostly British and their descendants, claim to be called by the name of the mother country; and that, moreover, scattered through the length and breadth of this extensive track is a race of human beings, the rightful owners of the soil, who, though changed in many respects since white men went among them, are still uncivilized; these, although they cannot claim to be called by the name of Englishmen, yet having been so long associated with us may reasonably expect our sympathy if not support. These inhabitants of a portion of the British dominions are entitled to be placed by the British nation on an equality with their neighbours inhabiting the territory of the United States; and although perhaps the destiny of the aboriginal race "may be seen in the setting sun," yet it is against the laws of humanity to offer any obstacle to the progress of civilization.

*Union of British North American Provinces.*—Much has been talked about, but perhaps less really thought of, the union of the British North American Provinces, a scheme which, although in the present age, might be thought somewhat speculative, may yet not only be projected but accomplished. But it must be a work of time, and such time as many may become impatient, even in contemplating. Before a union can take place a connexion must be made, and in making this connexion each link has to be bound to its adjoining one, and new links supplied where required.

*Connexion with the United States.*—I have before pointed out that the means of communication between the country under consideration and the civilized world are of very indifferent descriptions, and that in the present state of those communications it is more nearly connected with the United States than either England or her provinces. This connexion, which is year by year increasing, will, if some steps are not taken for the opening of a practicable route with Canada, monopolize the whole traffic of the interior, and thus drawing those strong ties of commerce and mutual interests gradually tighter, may yet cost England a province, and offer an impassable barrier to the contemplated connexion of her Atlantic and Pacific Colonies.

I would not at present undertake to say, that if the offer were made by a neighbouring power of protection, the inhabitants of Red River Settlement would cease to own allegiance to England; but

I do believe that in a few years' time, should the present form of government continue, which, although by no means oppressive, yet it must be owned is not exactly devoted to the interests of civilization, such a demonstration would be by no means improbable; and as to the possibility, there is at present no power to prevent it.

*First Step required.*—The first great step required towards opening up the interior and connecting it with the eastern provinces is the formation of a mode of communication between Lake Superior and Red River Settlement, which, in giving facilities to a trade with Canada in British manufactures, would create a place of importance on Lake Superior, and the formation of small settlements along the route, besides guiding the set of western emigration through British soil. The water routes connecting Lakes Superior and Winipeg have been examined and fully reported upon by competent persons, who have given it as their opinion that no continuous water communication can be established, but have proposed a scheme of a partly water and partly land route from Fort William on Thunder Bay to Red River Settlement, which to my mind, taking into consideration the very large expenditure required to carry out this, at best, interrupted communication, appears far from being one suited to the requirements of the case. The details of this scheme are to be found in the Parliamentary papers which I have on several occasions referred to, dated June 1859. On this a Company was formed in Canada, under the name of the "North-west Transportation and Land Company," the object of which was to open this route and trade with the interior; but the stock failing to be taken up in England, little has been heard of it of late. Such an undertaking is one of the few which are rather the work of Government than private companies, who could not expect remuneration for the outlay in any reasonable time.

*Proposed Land Route.*—At present we know little or nothing of the district of country between Lake Superior and the Lake of the Woods, except just along the "canoe route;" but my opinion long since expressed (see Appendix I.) is, that a land route is required from a harbour on the north shore of Lake Superior passing the north end of the Lake of the Woods to Red River Settlement. And the reason I say north shore is, because if any port could there be found, such as Nipigon Bay (if it should prove available), it would, besides being as near the north end of the Lake of the Woods (the southern part of which lake is in American territory), as Fort William, be on the line of an ultimate land route to the present settled parts of Canada. This would necessitate the formation of about five hundred miles of road, through probably a difficult country. But in using the word road, I do not wish it to be understood that a regular stage road is required to be constructed, for it would in the first instance be little more than cutting away the trees wide enough for a track, the partial levelling of some of the roughest places, the formation of causeways over impassable swamps, and the rough bridging or forming slopes into the smaller creeks; while the larger rivers would be left for crossing by means of boats or flying bridges, which would be established by settlers, who might be encouraged to settle along the road by the restriction of free grants of land to that portion of the country.

The general direction of this road could most easily be laid out by one accustomed to travelling during winter, while its cutting out might be commenced the following spring. The winter trail would naturally deviate from the summer road, for the purpose of keeping on the lakes and swamps where the travelling is level, but still it would in most parts follow the cut road; and if settlers, as has been before observed, were induced to locate along the line, they would, by cutting hay off the numerous swamps during summer, be able to supply the wants of passing travellers during winter; this would, I doubt not, cause the route to be much used during that season, when the bogs, rivers, and lakes are frozen. Another reason in favour of this route is that it would be on the line of, and consequently aid considerably, in the construction of a railroad, besides being well removed from the international boundary.

This then is the first great step required, and when we see with what rapid strides settlement, and consequently civilization, is extending to the west and north-west from the upper waters of the Mississippi, whence a navigable river flows into British territory.

I cannot but think that the above proposed undertaking is of national importance, and would, therefore, press it on the attention of Her Majesty's Government.

*Indian Policy.*—With respect to the government of the interior it is hardly my place to offer suggestions; but in the event of any change being made in the present state of things, the interests of all the parties concerned should be kept in remembrance; and while in regard to the colonist there is previous experience for a guide, we have no precedent as to the Indian. I have for that reason paid particular attention to the policy of the United States in regard to the aborigines, and after having well weighed and considered both sides of the question, I have been led to the conclusion that they should be taken under the special care of the Government; and that while provision is made for them by the reservation of a certain proportion of the proceeds resulting from the sale of Crown or rather Indian lands, that also in the framing of the laws and statutes of a new colony particular attention should be paid to the appropriation of Indian reserves, the prevention of whites "buying out" Indians, and the prohibition of the liquor traffic.

Out of the "Indian fund" above proposed an Indian Commissioner and staff would be paid, who in attending to the interests of the Indians would have the management of the "Indian agricultural settlements" and schools mentioned in a former part of this report, the expenses of which, as well as everything connected with the Indians, would be defrayed by the fund. I should not, however, advocate the system of licences for the Indian trade, for the half-breeds being natives, could not be compelled to have licences, and the expense would only ultimately fall on the Indian, who would not get his goods so cheaply as if there were free trade.



*Military Police.*—It would, moreover, be necessary for the maintenance of law and order, the suppression of the liquor traffic, and the preservation of peace with and among the Indian tribes, to establish a provincial military police, somewhat on the system of the Irish constabulary; such a body would, moreover, serve as the nucleus on which to build should circumstances require, and it might be easily raised from among the present population.

*International Boundary.*—It would be advisable that at an early date the boundary should be run westward from the Lake of the Woods, where the Commissioners under the treaty of Utrecht terminated their labours in 1825; and from the nature of the country, this might readily be done by a small party, American and British, in a short time, and at little expense. The marking of it on the prairie far away from all settlements, or the chance of any for some time to come, could be easily accomplished by the erection of mounds or cairns at certain intervals in prominent positions. This is at present rather important in the region of Red River, for the position of the boundary having only been determined by passing travellers with the aid of ordinary sextants, is not known within a quarter of a mile; and this being only 75 miles from the centre of the British settlement on Red River, while Americans are pushing down this valley, should any revenue or other establishment be located on the wrong side of the line by either country, it might hereafter prove the source of some difficulty. Again, in the country of the Blackfoot Indians, towards the Rocky Mountains, some of the waters of the Missouri certainly come from British ground; and as treaties are now being formed with these Indians by the United States for the sale of their lands the boundary should be known in that part. The locality of the boundary has been determined in the mountains, and at their bases on either side (see Appendix II.), where I have drawn attention to the peculiar configuration of the mountains at that part, but the forty-ninth parallel is in no way marked. At any rate the determination of the boundary in the immediate neighbourhood of Red River should be attended to without delay.

*Future Settlement.*—Concerning the capabilities of the soil and climate for the purpose of agriculture, I have refrained from making general statements which might lead to erroneous conclusions, but have confined myself to speaking of those portions of which I have personal knowledge, or concerning which reliable evidence is to be obtained. From the information I have gleaned, I think that the first fresh settlement formed will be in the region of Manitoba and Winnipegosis Lakes and the Upper Assiniboine River; and that as immigration increases, settlements will reach the Saskatchewan about its forks, and thence up the north branch, Battle and Red Deer Rivers, where timber is comparatively not so scarce as in the more southern part of the country; and doubtless, in time to come, a considerable business will be carried on in bringing timber down the Saskatchewan from the Rocky Mountains. My reason for mentioning the country about the lakes and Upper Assiniboine is, because all those who have visited this district report that the greater portion is well adapted for settlement, the soil very fertile, and the climate probably differs little from that of Red River; and in regard to the means of communication, the bordering lakes would offer considerable facilities, as it appears that steamers of light draught might run from Red River Settlement to Lake Winnipeg through the Little Saskatchewan to Lake Manitoba, and thence to the Waterhen River into Winnipegosis Lake.

This is one route which has been proposed to the Saskatchewan, the distance across the Mossy Portage, marked on map between the last-named lake and Cedar Lake, through which the Saskatchewan flows, being only four miles; but I should much doubt whether this circuitous line of communication with the Upper Saskatchewan would hold its own against the direct land transport through the plain country.

I have said that agricultural settlements are likely to flourish about the forks of the Saskatchewan, and thence to extend westward rather than south-west. My reason for this statement is, that the original prairie land, wherever I have seen it, is, as well as being destitute of wood, also wanting in good soil. For whether of a sandy, clayey, or gravelly subsoil, there is seldom more than a couple of inches of vegetable mould, and the southern part of the Saskatchewan country is generally speaking of this nature, which tract stretching southward beyond the Missouri, has in parts not inaptly been termed "desert." It must not, however, be inferred from this that all prairie land is sterile, for there are immense prairies in the valley of the Mississippi, which extend up to Lake Winnipeg, and account for the great fertility of the Red River Valley, which are quite of a different character, and are now called "arable prairie," in contra-distinction to the "dry upland, or rolling prairie;" while around the northern limit of the original prairie, and between it and the wooded district, is a belt of greater or lesser width, which having once been woods, has been cleared by the extension of the frequent prairie fires, and is now a comparatively open country, having a fine black vegetable soil; such is the region about the forks of the Saskatchewan, and much of the country to the north and west, while that bordering on the lower part of the Saskatchewan is so little elevated above the lakes and rivers, that although a great resort for waterfowl, it must for ages remain in its present state.

*Benefit to the Interior from a Communication with the Civilized World.*—But to speak of the interior generally, and the benefit it would derive from the improvement of the means of communication with the civilized world, it cannot but be supposed that many of those enterprising individuals in Canada and the Lower Provinces so impressed with the idea of "going west" would, if the means were at hand, rather make for the somewhat rigorous though healthy climate of the northern prairies, where they would still be under the government to which they have been accustomed, than, as they now do, migrate to the Mississippi States. Thus would a class of hardy and striving people be introduced among the somewhat indolent yet most capable population of the interior, while others, tempted by the offer of free grants along the line of land road between Lake Superior and Red River, in settling would supply some of the required links in the chain of civilization. Again, the half-breeds being a class brought up from their youth to voyaging by land and water, would abundantly supply that, in a country of such extent, much needed element, while many unsuited

to the steady work of an agricultural life would find employment as stock-keepers, lumberers, and such like.

*The Passes of the Rocky Mountains.*—In anticipation of the establishment of a continuous route through British North America, it is proper here to refer to the passes of the Rocky Mountains north of latitude 49°, or, in other words, in British territory. There are many points at which the chain of these mountains can be traversed, but omitting for the present that known as “Peel’s River Pass” within the Arctic circle; that from Fraser’s Lake to Pelly Banks, at the head waters of the Yonkon in latitude 62°, as well as one from Dease’s House to Stickeen, and others only known to the hardy fur traders of the far north, we come to three, one of which crosses from the Findlay branch of Peace River to Babine River, the northern boundary of the province of Columbia; while the other two, at the very head waters of Peace River in latitude 55° north, connect with Fraser’s River at its most northern bend, one of which was described as long ago as 1793 by that intrepid traveller Sir Alexander Mackenzie.

*Passes to British Columbia.*—The connexion with these being, however, by water, and rather far north on the east side, I shall pass on to enumerate the known passes more to the southward, and which may be called the Passes to British Columbia. In commencing with the north they stand thus:—

1. Cow Dung Lake Portage, or “Leather Pass,”	latitude	54° 0′
2. Boat Encampment on original Athabasca Portage	„	53° 0′
3. Howse’s Pass	- - - -	„ 51° 45′
4. Kicking Horse Pass	- - - -	„ 51° 25′
5. Vermillion Pass	- - - -	„ 51° 10′
6. Kananaski or Emigrant Pass	- - - -	„ 50° 40′
7. Crow Nest Pass	- - - -	„ 49° 40′
8. Kootonay Pass	- - - -	„ 49° 25′

1. The first of these connects the head waters of the Athabasca River with the great fork of the Fraser, and has never been used except as a “portage” between these two rivers.

2. The second is that which until the last few years was used regularly by the Hudson’s Bay Company for the conveyance of a few furs, as well as despatches and servants, from the east side to the Pacific by way of the Columbia River, and from the “Boat Encampment” is navigable for small craft; but this pass, like the first, has not been used in connexion with any land route on the west side.

3. The third was probably first used by either Thompson or Howse (author of the “Cree Grammar”), who, following up the north branch of the Saskatchewan crossed the watershed of the mountains to the north fork of the Columbia, and thence to its source, the Columbia Lakes, where striking the Kootonay River, he followed it down to the south of 49° north.

4. The “Kicking Horse Pass,” so named by Dr. Hector, crosses the watershed from near the head waters of Bow River to those of the Kootonay, and may be reached by following up either the north or south branches of the Saskatchewan by land.

5. While another (see Parliamentary Papers, June 1859), the “Vermillion Pass,” also traversed and laid down by Dr. Hector during the summer of 1858, occurs also on Bow River, so near the last named one that it is unfortunate that the western edge of the mountains was not reached, as it would then have been proved whether these passes can be of value in connexion with a continuous route across the country.

6. The next pass which enters the mountains in common with the fifth on Bow River has been named the “Kananaski Pass” (see Parliamentary Papers, June 1859), and was laid down by latitude and longitude observations during the summer of 1858 by Captain Palliser. This also leads to the Kootonay River, passing near the Columbia Lakes. It is generally supposed that this pass was only discovered last year, but a description of it is to be found in “An Overland Journey round the World,” by Sir George Simpson, who, together with a party of emigrants about 50 in number, under the late Mr. James Sinclair, passed through, but not with carts as has been stated (see Evidence before the Select Committee, Hudson’s Bay Question), to the lower part of the Columbia in 1841, besides which it has been used by other travellers. If we are to consider its western extremity to the south of the Columbia Lakes, it is a long and indirect pass, but as yet it has only been used for following the valley of the Kootonay, and thence into American territory. In the event of the country west of the Columbia Lakes proving suitable to a land road, this as well as the previous three would prove available for crossing from the Saskatchewan north of latitude 51°.

For one hundred geographical miles of the mountains south of Bow River no pass is at present known to exist until we come to Mocowans or Belly River, a tributary of the South Saskatchewan, on the branches of which four passes enter the mountains, the “Crow Nest,” the “Kootonay,” the “Boundary,” and the “Flathead.”

7. Of the first of these we know only (see Appendix II.) that its eastern entrance is on the river of the same name, while it emerges in the vicinity of the “Steeple” or Mount Deception, while neither of the two last are entirely in British territory, hence the name of “Boundary Pass” for that one which has its culminating point north of 49° and which has been described (Appendix II.)

8. The “Kootonay Pass,” the most southern, and, of those yet known, by far the shortest in British territory, having been already described in detail, as well as a plan and section having appeared (see Appendix II.), requires no further notice, but I will here observe that there is one point on which I may have been mistaken, namely, that the river at its western extremity, into which the Wigwam River falls, is perhaps not the main Kootonay River which I fell upon near the 49th parallel, but may be the Stag or Elk River, a branch of it. On reference to my map, however, it will be seen that seven miles of the course of this river is only dotted (signifying that I had not actually seen it there), so that the junction of these two rivers may take place in that interval. I have consequently



made the alteration in red on the original map (see Appendix II.) but in *dotted lines as uncertain*, and I take this opportunity of stating that whatever appears on any map of my own in *continued lines is from actual observation*, nothing obtained by report, however reliable, being accepted as certain. If this practice were more generally followed by travellers, the greater part of those mistakes and inconsistencies which cause such trouble to the mapper would be prevented. Whatever course the river above alluded to takes, the extremity of Kootenay Pass remains unchanged, for in proceeding westward out of it the direction would not be along but across the river, on to the tobacco plains, as shown in the section I, Appendix II.

The passes of which the altitudes are known do not differ greatly, and I refrain from commenting on their relative merits, because, before any particular one can be selected for the construction of a road, the easiest land route from Hope, at the western bend of Fraser's River, should be ascertained, which, considering the distance, would be no very great undertaking. In conclusion, I would only remark that *at present no pass in British territory is practicable for wheeled carriages*.

*Country South of the Saskatchewan River.*—On reference to the maps it will be observed that the late exploring expedition has left a large portion of the country in the neighbourhood of the south branch of the Saskatchewan, and the tract between that river and the international boundary, totally unexplored, but in order to remedy this defect I have collected all the reliable information in my power, and I should here mention that the greater part of this I obtained from Mr. Harriott, a retired chief factor of the Hudson's Bay Company service, now living at Red River Settlement, who has travelled over the greater part of that country as far as the Missouri.

It appears that the south branch of the Saskatchewan is almost entirely destitute of wood up to the vicinity of the junction of Red Deer and Bow Rivers, the whole country being prairie, but about seventy miles south of that point there is a range of low wooded hills, having an extension east and west about eighty miles. These hills are usually called the "Cypress Mountain," from the fact of a species of pine, known by the name of "Cypré" to the French half-breeds, growing there in abundance, and appear to be the watershed between the Saskatchewan and Missouri, for there are streams described as running towards both rivers. There, moreover, seems to be a good supply of building timber, which may yet prove of much value. Being about seventy miles north of the boundary, it is well within British territory.

*Route through the Interior.*—As to a route from Red River Settlement to any of the more southern passes, it would follow the trail now in use to Fort Ellice, thence along the Quappelle River and Lakes, striking the south branch near its elbow, and then following the general direction of that river towards the mountains, taking whichever branch led to the selected pass. This would doubtless be entirely a land route, for the Assiniboine being very tortuous, and only fit for canoes, and the Quappelle being in places not even navigable for these frail craft, no water transport would be available except on the Saskatchewan, and if the country were examined, probably good halting places would be found which would allow of a direct course being made from the "Elbow" to "Harriott's Cypress Mountain," which would materially shorten the distance to the three forks of the Belly River, near the most southern passes. The distance from Red River to the western extremity of one of the passes would be probably 900 miles by the windings of a trail.

I have previously mentioned that to the west of the Rocky Mountains no land route to the Pacific in British territory is at present known, but we are aware that from Hope on Fraser's River the country has been traversed with pack animals, keeping north of 49° as far east as Fort Shepherd on the north fork of the Columbia, so that there remains from the base of the mountains but 140 miles in a direct line to be crossed in order to establish the fact of a land route from Red River Settlement to the Pacific. This would, however, be after arriving at the mountains unavailable for wheeled carriages. It remains, therefore, to be considered by the proper authorities whether the state of the Atlantic and Pacific provinces demand the opening of a waggon road.

## D.—II.

### TELEGRAPH AND MAIL ROUTE.

I have now to propose the establishment of an uninterrupted communication by electric telegraph between the Atlantic and Pacific through British North America.

*Shortest Distance from Atlantic to Pacific.*—It is worthy of notice that the "great circle" (shortest line on the globe) passing through Montreal, the seaport of Canada, and New Westminster, the capital and seaport of British Columbia, follows the valley of the Ottawa, thence to the north shore of Lake Superior through Red River Settlement, touching the South Saskatchewan, and so across the Rocky Mountains; and this is the only direct continuous line for a land route through the more northern part of the continent, clearing as it does both Lakes Superior and Winnipeg, and it will be this route that the continuous line of railway through the British provinces, whenever that shall be made, must follow.

*Telegraph and Railroad.*—Again, telegraph communication is at present complete from St. John, Newfoundland, and Halifax, Nova Scotia, to the most western settled parts of Canada; while in a few years the line of railroad will be complete between Ottawa, the future seat of Government of Canada, and Halifax, Nova Scotia, the nearest port to Europe in the mainland of North America, which is continually open during winter.

*Distances.*—The distance across the entire continent, not allowing for the small curves, are as follows:—

	Miles.
Halifax, N.S. to Montreal - - - - -	650
Montreal to Ottawa - - - - -	100
Ottawa to Nipigon Bay, Lake Superior - - - - -	650
Nipigon Bay to Red River Settlement - - - - -	400
Red River Settlement to Rocky Mountains - - - - -	800

	Miles.
Rocky Mountains to the Gulf of Georgia - - -	400
Halifax, N.S., to Gulf of Georgia - - -	3,000
Atlantic summer port of Montreal to Gulf of Georgia - -	2,350
Western extremity of Canadian inland navigation to Gulf of Georgia	1,600

Of the total distance, 750 miles of telegraphic communication is at present established, leaving the remaining three-fourths yet to be accomplished.

*Proposed Telegraph.*—It would be ridiculous to expect for many years to come a continuous railway communication throughout this immense distance, but from the fact of over one-fourth of the distance being now complete, and considering the incalculable benefit the United Kingdom and her distant colonies would derive from connexion by telegraph, I am encouraged to advocate warmly the carrying out of this enterprise. Were the entire line in working order, and supposing the "Atlantic Telegraph" not in existence, British Columbia on the Pacific would be within ten days of England, whilst at present four times that period does not suffice for the conveyance of news, even through a foreign state.

It would consequently appear advisable to have this line at once marked out. All that portion through the wooded district from Ottawa to Nipigon Bay, and thence to Red River Settlement, could be accomplished with the least expense during winter, while the remaining portion, a considerable part of which is well known (namely, from Red River Settlement across the Rocky Mountains to the mouth of Fraser's River) might be performed during the following summer.

A mail route might be established without much difficulty, but the objection which I see to it at present is, that on account of no continuous railway being in existence from Halifax, N.S., to Quebec, the forwarding of letters entirely through British territory could only be accomplished with anything like despatch while the port of Quebec was open during the summer season. However, this objection in no way applies to the telegraphic communication, which is of course open during the whole year, from Newfoundland and Nova Scotia to the west of Montreal, being one-fourth of the whole distance.

The construction of an Atlantic and Pacific railroad, which has so long engrossed the minds of Americans, is now in that country beginning to be considered a most formidable undertaking, and the citizens of the United States are very much divided as to the line of route. No less than five different lines have been surveyed by the Government; that near the boundary of Mexico appearing to be the most feasible. But in all of them there is a very great amount of sterile land to be gone through; and it would appear that a considerable portion of the line from St. Paul at the head of the navigation of the Mississippi, usually known as the "North Pacific route," which has been laid out so close to the international boundary, could be most easily carried over British ground. It seems therefore worthy of consideration whether this could not be made a joint international undertaking.

#### CONCLUSION.

In the introduction to this report, a general summary only has been given of my own proceedings, the details of exploration and scientific inquiry which would enter into a personal narrative having been purposely omitted; but in order that others may be able to judge of the degree of dependence to be placed on the geographical and other information herein given, I will enumerate the principal instrumental and other aids employed.

*Instruments.*—The instruments used for geographical determinations and exploratory surveying were:—

Eight-inch sextant, the property of May, Observatory Department.	
Artificial horizon,	„ Exploring expedition.
Prismatic compass,	„ Self.
Pocket ditto,	„ Ditto.
Chronometer,	„ Admiralty.
Watch,	„ Self.
Aneroid barometer,	„ Exploring expedition.
Boiling-point apparatus,	„ Ditto.
Thermometers,	„ Ditto.
Telescope,	„ Self.
Magnetic instruments,	„ Colonial Department.

Besides which I employed note "log," and astronomical computation books, in the planning of which I was much aided by others, as well as a blank map in pieces, for sake of convenience.

*Mode of keeping Records.*—The reliance which I am now able to place on the country mapped is on account of my having always kept a regular dead reckoning of the courses, time, and estimated rate of travelling, which, together with the sketch of each day's route, is preserved in my "log books," this reckoning being checked as often as possible by celestial observations, and the little difficulty I find in gaining an idea of the general features or details of any part of the country is from having at the time kept full notes, leaving little or nothing to memory.

*Elevations.*—The elevation above the sea, depths of valleys, and other measurements of heights were made by an aneroid barometer compared at intervals with the temperature of boiling water, determined by an instrument of the most improved construction, and have been, when necessary, inserted in the accompanying maps, or referred to in the course of this report.

*Geographical Positions.*—The following latitudes and longitudes are deduced from celestial observations, except those underlined, which are "by account" from careful dead reckoning. Those in the second column are what I have adopted when my positions have differed from those of other observers, or the rate of my chronometer was irregular:—



Place.	Observation and Account.	Adopted.
York Factory - - - -	56 59'8 N.	°
" Norway House - - - -	53 59'0 N.	96 26'0 W.
" Fort Carlton - - - -	52 52'5 N.	98 7'0 W.
" - - - -	106 23'8 W.	106 20'0 W. by lunar observations.
Jack Fish Creek at Pike Lake - -	53 0'5 N.	
" Fort Pitt - - - -	109 33'0	
" Vermillion Creek, bend from N. to E. -	53 34'9 N.	
" Vermillion Creek, east end of chain of lakes - - - -	109 33'0 W.	
" Vermillion Creek, east end of chain of lakes - - - -	53 30'2 N.	
" Most Northern Point of Edmonton and Fort Pitt trail - - - -	110 17'0 W.	
" Fort Edmonton - - - -	53 40'2 N.	
" Twin Knolls - - - -	111 11'0 W.	
" Wolf's Road, 10 miles N.N.E. of Elbow of Red Deer River - - - -	53 52'2 N.	
" Junction of Little and Great Red Deer Rivers - - - -	112 27'0 W.	
" Cache Camp - - - -	53 32'4 N.	113 35'0 W.
" Slaughter Camp - - - -	113 35'0 W.	
" Point of Wood's Valley - - - -	52 59'7 N.	
" Site of Bow Fort - - - -	113 27'0 W.	
" Dead Indian Creek - - - -	52 32'9 N.	
" Sunday Valley - - - -	113 50'0 W.	
" Blood Creek - - - -	52 2'0 N.	
" Belly River - - - -	114 20'0 W.	
" Entrance of Kootonay Pass - - - -	51 52'9 N.	
" Watershed - - - -	114 5'0 W.	
" Flat-head River - - - -	51 20'8 N.	
" Wigwam River, North and South Bluffs -	113 50'0 W.	
" Kootonay Trading Post, H. B. C. - - - -	51 21'2 N.	
" Kootonay Camp - - - -	114 46'0 W.	
" - - - -	51 9'4 N.	
" - - - -	115 20'0 W.	115 20'0 W.
" - - - -	51 3'1 N.	
" - - - -	114 59'0 W.	
" - - - -	50 44'4 N.	
" - - - -	114 43'0 W.	
" - - - -	50 23'1 N.	
" - - - -	114 40'0 W.	
" - - - -	49 51'9 N.	
" - - - -	114 31'0 W.	
" - - - -	49 34'0 N.	
" - - - -	114 34'0 W.	
" - - - -	49 27'0 N.	
" - - - -	114 50'0 W.	
" - - - -	49 22'1 N.	
" - - - -	114 55'0 W.	
" - - - -	49 17'0 N.	
" - - - -	115 15'0 W.	
" - - - -	48 55'5 N.	
" - - - -	115 31'0 W.	
" - - - -	40 55'6 N.	
" - - - -	115 19'0 W.	Chronometer.
" - - - -	114 55'0 W.	Lunar.
" - - - -	115 30'0 W.	Account West.
" - - - -	115 22'0 W.	Account East.
" - - - -	- - - -	115° 25'0 W.
" Flat-head River - - - -	48 57'3 N.	
" Redstone Creek - - - -	114 46'0 W.	
" - - - -	49 7'6 N.	
" - - - -	114 18'0 W.	114 27'0 W.
" - - - -	114 27'0 W.	
" North End of "Waterton" or "Chief's Mountain" Lakes - - - -	49 6'2 N.	
" - - - -	114 9'0 W.	114 16'0 W.
" - - - -	114 16'0 W.	

N.B.—Degrees, minutes, and tenths of a minute are used ; no seconds.

*Names.*—I am responsible for but few proper names, for whenever I was able to discover the Indian name of any place, I have (unless too long or unpronounceable) inserted it, and its interpretation in English. Where this has not been the case, I have generally given the names of travellers or naturalists, so that I am not responsible for such as "Belly River," "Devil's Head," and the like, which are translations from the Indian.

*Sketches.*—My sketches of the passes of the Rocky Mountains, forts, and other objects of interest in the country I have not inserted here; but if it should be considered advisable for copies to be made of any of them, I shall be glad to place them at the service of Her Majesty's Government.

*Aid of Hudson's Bay Company.*—I cannot pass over the aid which has been afforded me by the Hudson's Bay Company, who, besides refusing remuneration for the hospitality afforded at their establishments, have rendered every assistance to the prosecution of my journeys through their territories, as well as supplying necessaries procurable only from their own stores.

*Favours received at Washington.*—The favours conferred upon me by the United States Government authorities at Washington, which I visited on my way to England for the purpose of obtaining the latest maps and other information concerning the natives and country near the international boundary, I shall not easily forget, for on my mentioning in what capacity I had been employed by Her Majesty's Government, I was presented with the Government maps drawn up under the War Department, the latest report on their well regulated "Indian affairs," and I, moreover, received from the Smithsonian Institution many scientific and other publications.

*Conclusion.*—In drawing this report to a conclusion, I would wish it to be understood, with respect to the exploring expedition on which I at first served, that the course I pursued was the only one to my mind compatible with the position of an officer in Her Majesty's service, and the carrying out of the wishes of the Government.

Woolwich, October 21, 1859.

THOMAS BLAKISTON,  
Capt. Royal Artillery.

#### APPENDIX I.

SIR,

Fort Carlton, Saskatchewan River, January 3, 1858.

As the subject of a communication between Red River Settlement and some civilized portion of the British dominions is beginning to attract some amount of public attention, and as two indifferent routes are at present in use, one of which, namely, that from Canada, viâ Lake Superior, Rainy Lake, and the Lake of the Woods, you have this last season traversed, and will no doubt have made a report on the same, while during the same season I have passed the other, namely, from England, viâ York Factory, on Hudson's Bay, and Lake Winnipeg, I have the honour to lay before you my observations on the same for the information of Her Majesty's Government.

#### *Description of Boat used in River Navigation.*

In the first place, the mode of transporting passengers and goods between York Factory, Hudson's Bay, and Red River, which is at present and has been for many years in use, is by means of large wooden boats built in the country, and well adapted for this kind of navigation. Each boat is of the following construction:—Length of keel 30 feet, over all 42 feet, which gives considerable shear equally to both stem and stern-post; breadth of beam 9 feet, sharp at both ends, depth inside 3 feet, and when loaded with 70 "pieces" (about 56 cwt.), besides the crew, oars, sail, mast, &c. draws two feet of water; it is steered by means of a long sweep passing through a ring made fast to the stern-post, except under sail, when a rudder is shipped.

#### *Voyages.*

Each boat is manned by one steersman, one bowsman, and six or seven middlemen, who, mostly half-breeds of French-Canadian or British descent, labour in the service of the Hudson's Bay Company for very moderate wages; their food, however, which consists of "pemmican" and flour, being supplied by the Company, as much as they have need of; in fact, were it not that they have plenty of good working food, they certainly could not continue this laborious work.

#### *Up-passage.—Description of the Route.*

The spring floods having subsided, the upward journey is performed as follows:—Leaving York Factory, which is situated on the left bank of Hayes River, five miles above its mouth, it is possible with a fair wind to sail about six miles to the head of the tide, at which place poles and the tracking line are obliged to be used for the purpose of passing some shoal places; from this sailing or "tracking" (hauling the boat in the manner of a canal barge by a line with four men walking on shore), with occasional poling over shoal places, is continued for a couple of days, after which the continual bends of the river and the strength of the current prevent the use of the sail, the mast, a rough pole, is therefore thrown overboard, and tracking with occasional poling is continued until the Rock Portage is reached, 124 miles above York Factory.

#### *Work of Men.*

Tracking is hard work for the voyagers, they take it turn about, an hour and a half at a time, in fact this river work, to say nothing of the "carrying" at the portages where many are injured, is very laborious and trying, particularly considering the fact of their being almost continually in wet clothes, from the necessity of frequently jumping into the water for the purpose of lifting the boat over stones, and their having to "track" over all sorts of ground under the high alluvial banks, often where scarcely foothold can be obtained.



*Time occupied.—Nature of the Country.*

This 124 miles of river, in my case, travelling with a brigade of six boats, lightly loaded, namely, with 50 pieces, was accomplished in six days. The river runs in a deep channel through alluvial soil, where not a piece of rock is seen, save the boulders in the bed of the river; from this first impediment westward to Lake Winnipeg the geological formation is primitive, the rock, which is nearly always at the surface, being granite and schist, and the whole country being but little elevated above the water.

*Description of the Route.*

Portage after portage, with occasional intervening lakes, succeed one another in rapid succession, over some of which the boats have to be carried, but at others hauled up the rapids by ropes, and the cargoes carried over land; suffice to say, that in the next 40 miles 20 portages are made, taking five days. After this two lakes of considerable size, Knee and Holey Lakes, are passed with four portages between them, soon after which the River Wepinapanis narrows so much that the oars sometimes touch granite rock on each side, which rises vertically to a considerable height. Before emerging from this narrow gorge, which continues for some miles, some very bad rapids have to be surmounted, and again before arriving at White-water Lake a portage for cargoes and boats of two-thirds of a mile has to be made, in order to avoid the White Falls. The end of a narrow lake is within a few yards of the source of the Echi-mamis, a small stream whose waters flow to the westward; when sufficient water is only kept for the passage of boats by two dams six miles apart, these were formerly the work of beavers, but are now kept up by the passing boats. At the passage of a boat a portion is pulled away, the boats run through, and it is again shut securely. This stream, which on account of dams has little or no current, is for the most part through marsh, and so narrow that the willows nearly meet over head, and the boat sometimes touches the bank on each side. At a distance of 358 miles from Hudson's Bay Sea River is entered, when, by making the last of the 35 portages, and pulling against stream, Norway House, a post of the Hudson's Bay Company is reached, from which to Lake Winnipeg is but 20 miles without rapids.

*Up-passage, Distance, and Time.*

Thus, from York Factory to Norway House, a distance of 400 miles, is accomplished only after laborious work for three weeks. The time for the passage across Lake Winnipeg to Red River, 300 miles, depending entirely on the wind, may be taken on an average at seven days; making the entire distance from York Factory, Hudson's Bay, to Red River Settlement, 700 miles, in four weeks on the upward passage.

*Down Passage.*

The passage down stream from Norway House to York Factory being accomplished in nine days, making about half a dozen portages, at three of which the boat is carried over, one being the two-thirds of a mile portage, all the other rapids being "run," not, however, without considerable risk, makes the passage from Red River to York Factory sixteen days.

*Entire Passage.*

Thus to go to and from Red River to Hudson's Bay without stoppages is about seven weeks.

*Another Route.*

The outlet of the waters which are collected in Lake Winnipeg from the Saskatchewan, Swan River, Red River, &c. is from the north end of the lake by Nelson River, which flows into Hudson's Bay at the mouth of Hayes River; but the falls and rapids are said to be so very heavy on this river, besides its being the longer route, that it is now never used.

*Impossibility of Improvement for Steamers.*

It has been proposed to improve the former route in order to allow of the passage of steamers, this however from the foregoing description will be seen to be impossible: for, if by cutting through solid granite and swamp, and the construction of locks, the portages could be avoided and the smaller rivers widened, yet in the lower rivers the want of water could only be overcome by dredging, which operation would be entirely destroyed by the spring floods; and I think that it would be the opinion of any observing person passing through this route, that it would be impossible so to improve it as to allow of the navigation of anything larger than the boats (previously described) at present in use; and certain it is, that the future produce of the vast western plains could never be transported in this manner.

*Hudson's Bay.*

But were a route practicable there exists a consideration, which is above all others; namely, that from the outlet of Hudson's Bay being so far north, and the amount of ice in the bay itself, vessels cannot remain more than six weeks out of the whole year at York Factory, with a chance of afterwards being able to make their way out again to the Atlantic.

*Natural Outlet.—Land Route proposed.*

No doubt the natural outlet of this great western district is across an easy country to the water of the Mississippi and Missouri, which if first established the west is lost to Britain. It behoves us, therefore, to establish a route through our own territory, for the encouragement of emigration to and the transport of the future produce from Red River and the great Western Plains to Canada. Now, as the water route from Lake Superior to Red River which you have traversed is of a still more

amphibious nature than the more northern one described in this report it seems natural that we should look for a land route; I would therefore suggest a search for such a one, considerably to the north of the eastern part of the canoe route, namely, from a port on the north shore of Lake Superior crossing to the north end of the Lake of the Woods, which, as well as being quite as convenient for the lake navigation by steamers, would be on the line of a continuous railway from other portions of Canada and the United States, besides being much more preferable in a military point of view than a route near the boundary line.

*Means of Transport.*

Steamers will no doubt navigate Lake Winnipeg and Red River, but the Saskatchewan being obstructed at its mouth by a large rapid, and at other places by minor ones, besides the upper part containing numerous shifting sand bars, will likely be little used for navigation, particularly on account of the very level nature of the country westward from Red River and Lake Winnipeg, so suitable to the formation of railways, which I doubt not will be the first means of transport on a large scale on these plains.

*Postal Communication through United States.*

At present there exists no postal communication between Canada and Red River except through the United States.

John Palliser, Esq.,  
&c. &c.

I have, &c.  
(Signed) THOMAS BLAKISTON,  
Lieut. R. Artillery.

P.S.—By the arrival of the packet, I hear that the Canadian Government having granted a sum of 5,000*l.* for the establishment of a route between Lake Superior and Red River, an engineering party is at present employed in laying out a road from the Lake of the Woods to the settlement of Red River, to form the western section of the route.

January 29, 1858.

T. B., Lieut. R.A.

APPENDIX II.

*Report on the Exploration of the Kootanie and Boundary Passes of the Rocky Mountains in 1858.* By Captain BLAKISTON, Royal Artillery.

On the 12th of August 1858, I left the camp of the main body of the exploring expedition at the site of Bow Fort, base of the Rocky Mountains, lat.  $51^{\circ} 9' N.$ , long.  $115^{\circ} 20' W.$ , and after crossing the Bow River by a ford about four miles above that point, I gained ground to the eastward, so as to get clear of the broken and wooded country on the edge of the mountains.

My party consisted of three Red River half-breed voyageurs, Thomas Sinclair, Amable Hogg, and Charles Racette, besides a Thick-wood Cree Indian "James," whom I had engaged as hunter to the party. I had ten horses, five of which were used for riding, and the rest carried the packs, containing a quantity of ball and powder, tobacco, a few knives, and other articles of small value for Indian trade; also some dried meat and pemmican, with tea, sugar, and salt, as well as two boxes containing my instruments, books, &c.

Soon after leaving Bow River we crossed one of its tributaries, the Kananaski or Lake River, a rapid stream coming out of the mountains from the south-west; here we saw the remains of many wooden carts which had been abandoned by a party of emigrants from Red River Settlement, under the late Mr. James Sinclair, on their way to the Columbia in 1854, who had found it impossible to drag them further into the mountains. This pass, I believe, follows the course of the river to its source, and is the one by which Sir George Simpson, governor of the territories of the Hudson's Bay Company, as well as another party of emigrants crossed in the Rocky Mountains in 1841. In the past season it was travelled by Mr. Palliser.

The forests consist of spruce (*abies alba*), a small pine (*p. banksiana*), and another rough-looking *abies* which grows to a large size, also a few balsam poplar, and aspen. In travelling through these mountain forests, the greatest obstruction is the fallen timber, which, lying about in all directions, causes much exertion to the horses, and confines them to a slow pace. It was during this first day's travel that I noticed the devastating effects of a tempest; numbers of trees had been blown down, and many broken short off. The work of destruction had evidently been of this year, but there were also signs of former work of the same character.

The following day, our course still tending a good deal to the eastward, carried us farther and farther from the mountains, but we passed within twelve miles of a marked outlier, which from its peculiar form, I called "The Family." After this as we travelled along through a partially wooded country, and receded from the near hills which obstructed the view, a sharp peak entirely covered with snow opened to us at about forty miles distance. The wind was from the westward, and to the east of the summit of the peak rested a mass of white cloud, which was very marked, for there were no other clouds to be seen, with the exception of a few light cirri over head. This attending cloud gave the mountain the appearance of an active volcano, and the effect against the clear sky was extremely beautiful. The phenomenon was caused by the aqueous vapour of the warm Pacific breeze being condensed by the coldness of the snow, and appearing as a cloud to the leeward of the peak. I took careful bearings of this mountain, to which I gave the name of "The Pyramid."

We camped at the forks of a creek, called by our hunter the "Strong Current." Here he was successful enough to procure a few fine mountain trout, which proved a very agreeable change to our ordinary fare, which consisted of dried buffalo meat, containing by no means too large a proportion of



fat, washed down by tea. Bread was not in our bill of fare, and I may here state, that during the whole summer while travelling, with the exception of two Sundays, I never tasted a morsel of farinaceous food. This may appear astonishing, but when continually travelling, with the appetite sharpened by a ride over the prairie in the cool breeze of the mountains, one becomes accustomed to do without flour, salt, sugar, &c., which under other circumstances would be considered indispensable.

The next day was Saturday; we rose early, packed the horses, and made a start as usual about sunrise, and travelled on through much the same sort of country, the up-lands being generally wooded, while the bottoms were partially covered by scrub willow and other bushes. We halted between 8 and 9 A.M. for breakfast, giving the horses a "spell" of a couple of hours or so; then started again, and gained a somewhat elevated position, from which we had an extensive view of a fine valley, watered by two clear mountain streams, which as they neared the edge of the great plains, stretching probably without break for 700 miles eastward, united, and with mingled waters, pursued their course towards Bow River, ultimately to pour themselves into the icy basin of Hudson's Bay. I continued on till we reached the southernmost of the two creeks, within ten yards of which, under the shade of some fine poplars, I pitched my small patrol tent. The valley bottom was a fine piece of prairie pasture for the horses, and presented a most suitable resting-place for a Sunday camp. I had (for it was only two o'clock) halted in sufficient time to allow me to obtain an observation of the sun during the afternoon for comparison with one I hoped to obtain on the morrow, and so rate my chronometer. This important instrument was carried each day, turn about, by one of the men, who for that day did nothing else but carry it as carefully as possible. I would recommend this plan to future explorers. In a large party, a few of the steadier hands should be selected for this service; but the same man should never be obliged to carry the instrument every day, lest he become careless.

My ordinary mode of travelling gave the horses six to seven hours' work per day, with the exception of Sundays. Frequently I halted from breakfast till noon, in order to obtain an observation for latitude, in which case I camped later. I never, however, gave up the plan which I adopted from the first, of making an early start, and getting the best part of the day's work over before noon. There are many reasons in favour of it. The horses were mostly Indian ponies, which are hardy and work well on grass. They grow somewhat lean while living out during the severe winter weather, but fatten rapidly with the appearance of the new grass in the spring. They are not accustomed to shoes, but I had some on three of them, whose feet I considered too much worn down for the rocky ground of the mountains. On camping, the horses after being watered, are left to themselves for the night, the fore legs of those likely to wander being hobbled with a piece of soft leather. They are very sagacious in following a trail. The 15th of August was a Sunday. While continually travelling, it will be found that rest one day in seven is required by man and horse, the former taking advantage of it to wash and mend clothes.

The weather continued fine, and this day the thermometer rose to 85° in the shade, with a clear sky, and fresh breeze off the mountains in the afternoon, the day closing with a calm evening. This mountain breeze appears to be a regular occurrence during the fine summer weather of this season. On each of three successive days of fine weather which we enjoyed at the site of Bow Fort, the morning was calm, at about 7½ A.M. the wind commenced lightly from about W.S.W. off the mountains, and gradually increasing; in the middle of the day and afternoon it blew a fresh breeze from the same point, with usually some *cumuli* over the mountains, which disappear before reaching the plains; in the evening the wind fell, and the night was calm. The explanation of this phenomenon is the same as that of the sea breeze so unvarying in tropical islands, namely, that as the sun gains altitude, the great plains which are entirely prairie become heated, and consequently the air in contact with them ascends and is replaced by the cooler air from the mountains.

Our general course for the next three days was a point east of south, for we were now as far out from the mountains as our Indian thought requisite. We were, however, within the outlying ridges, which are numerous, and all run parallel to the larger ranges of the great chain, namely S.S.E. Thus travelling the course we were on, we had very seldom to surmount any high land, but passed along the valleys between these ridges.

The country was less wooded than that previously passed, being for a considerable part fine prairie slopes. The main range or water shed, as I supposed it to be, was occasionally visible, through gaps in the nearer mountains, at a distance of about thirty miles.

On the 16th our hunter was lucky enough to procure us some fresh meat in the shape of wupiti or wa-waskasew (red deer) of the Crees. In order to lighten the burthen of the horses and preserve the meat, the bones were taken out, and it was cut into thin flakes and half dried over the night camp fire.

The same afternoon, as we arrived at Trap Creek, just above its junction with High Woods River, we found six tents of Thick-wood Stone Indians who were just preparing their encampment. We camped along with them, and as usual, when with or near any Indians, my flag, a St. George's Jack, was hoisted on a pole in front of the tent. I gave them a present of some tobacco and fresh meat. These Stone Indians, with whom are associated also a few Crees, and whose hunting ground is the wooded and semi-wooded country along the base of the mountains at the head waters of the Saskatchewan, are a harmless and well-disposed people towards the whites. Education has, thanks to the former Wesleyan missionary, the Rev. Mr. Rundle, and his successor, the Rev. Thomas Wolsey, made some little progress amongst them; a few being able to read and write the Cree syllabic characters, now in general use among the missions of the north-west.

During the afternoon I held a talk with these Indians. I told them plainly for what reason we had been sent to the country; that Her Majesty was always glad to hear of their welfare, and that any message which they might have for Her, I would take down in writing.

"We are glad," said an old man, "that the great woman Chief of the Whites takes compassion upon us, we think she is ignorant of the way in which the traders treat us; they give us very little goods and ammunition for our furs and skins, and if this continues our children cannot live. We are poor, but we work well for the whites. The Indians of the plains treat us badly and steal our horses, but we do nothing to them, for the minister tells us so." In answer to questions from myself, they said that they would wish white people to come and live among them, and teach them to farm, make clothes, &c., so that "their children might live," for the animals are getting every year more scarce. I may here state, that I have been fortunate enough this year to fall in with many camps of the different tribes of Indians inhabiting this country, from whom I always obtained as much information as possible on their present state, and their wishes as to the future; and I hope to draw up a report on the same for the information of Her Majesty's Government; for without doubt, when deciding on the future of this country, some provision should be made for the poor uncivilized beings to whom by right the soil belongs.

From these Indians I obtained a pair of saddle-bags, of which I was in want, and by giving in boot a little ammunition and tobacco, I changed a lame horse which I had brought with me for that purpose for a good strong Indian pony.

Crossing Spuchee or High Woods River on leaving the Indians in the morning, we travelled over undulating prairie all the forenoon, crossing another tributary of this river. During the latter part of the day we passed through a narrow wooded ravine between rugged hills, covered with burned forest, and camped on a small creek. Here I determined to make a cache. Therefore selecting a good thick spruce tree, we enclosed in a box some ammunition, tobacco, and a few other things, which with half the bag of pemmican which still remained intact, rolled up in a piece of buffalo robe, we suspended from a branch about fifteen feet from the ground.

We were delayed some time next morning by some of the horses having strayed a distance into the woods during the night; however, when found they were quickly unhobbled, saddled, and packed, and we started not very long after our usual hour. The Indian trail led between numerous wooded ridges, but the greater part of the wood was burned. The soil of the valleys was usually a deep dark mould, supporting a luxuriant vegetation of the smaller plants. This is the nature of most of these mountain valleys. Where the strata are upheaved to the surface, the ground is of course rocky; such is, however, not often the case in the valleys, but the lines of strata running along the ridges are distinctly visible even when the grass is growing, owing to the difference of colour of the grass on the almost bare rock. The strata run in the direction of the ridges, namely, a little east of south, and usually dip from, but in some few cases towards, the mountains, and at a considerable vertical angle.

In the afternoon we passed close on the left hand a very remarkable feature; it was a mass of rock projecting upwards from the top of a hill, and visible at a considerable distance; from its peculiar form I called it the "Chopping Block." Soon after we gained the height of land between the waters of the Spuchee and Mocowans, or Belly River, and the wide prairie valley of the latter broke upon our view. We descended a short distance and camped at the first wood and water.

Before gaining Belly River in the morning, the quick and practised eye of the Indian caught sight of a herd of buffalo in the valley; he therefore went ahead, and by the time we had halted on the river, and I had obtained an observation, he had killed one animal. I remained here until noon, in order to obtain a meridian altitude, and so complete my observation for latitude and longitude, occupying a portion of the time in measuring the heights of the successive river levels with the aneroid barometer.

These "river levels" are a very general feature in this portion of the Western Continent; I have observed them on all parts of the Saskatchewan above the forks, and its tributaries issuing from the Rocky Mountains, as well as on the Kootanie fork of the Columbia on the west side, and the Flat-head River in the mountains, from an altitude of 1,000 to upwards of 4,200 feet above the sea. They are in some places very marked, and appear as a succession of steps from the bed of the river to the level of the plain above, often in sight for miles, and running horizontally along either side. The tread of the step is of greater or lesser width, the rise nearly always abrupt and well marked. They were very decided in the valley of Bow River at the base of the mountains, where they appeared cut with mathematical accuracy.

The levels measured at Belly River were:—

	Above the sea.
Present bed of the river - - -	- 4,024
1st river level - - - - -	- 4,085
2nd " - - - - -	- 4,176
3rd, the level of the valley - - -	- 4,226

These river levels are for the most part, on the lower portions of the branches of the Saskatchewan, on a somewhat larger scale in vertical height than near the sources.

I was now on Belly River at about the same altitude as on Bow River at the site of Bow Fort, namely 4,000 above the sea, although 87 miles (geographical) in a direct line S.S.E. from it. From this point the route of the party may be traced on the plan attached to this report. The plan does not include the country to the northward, which has no connexion with the passes reported upon. I have, however, the whole country mapped on a smaller scale.

The bed and sides of this river are rocky, the strata of hard grey sandstone, much inclined, and the current obstructed in places by immense granite boulders. We found no difficulty in crossing, the water, though running swiftly, being not deeper than three feet, and about 25 yards across.



Looking through the gap in the near range through which the river issues, I saw a very decided dome-shaped mountain. It afterwards proved to be, when seen from the plains, and also from the top of a mountain in the Kootanie pass, the highest and almost only peak rising above the others in this part of the mountains. After the distinguished British naturalist, I named it "Gould's Dome." The gap through which I had seen this mountain was in the eastern or near range, of very regular form, extending, with the exception of this gap, for a distance of five and twenty miles without break. The crest of the range was of so regular a form that no point could be selected as a peak, I therefore gave the whole the name of "Livingston's Range;" it is a very marked feature when seen from the forks of Belly River and the plain outside.

On leaving Belly River we rose considerably, and keeping along under Livingston's Range the sun had dropped behind this great curtain before we camped. The spot was 540 feet above Belly River, which we had left behind to the northward. Looking to the mountains ahead of us I picked out the most prominent, and took bearings of them before the Indian, who was in the rear hunting, came up. There were two near one another bearing 30 miles south, one of which, from the resemblance to a castle on its summit, I named "Castle Mountain;" to the east of these, but at a greater distance, a portion of the mountains stretched out to the eastward. From reports which I had previously heard, I took the most easterly one, standing by itself, to be the "Chief's Mountain," which the Indian on coming up confirmed, and pointed out the place where on the morrow we should turn into the mountains.

This offset range occurs, as I afterwards discovered, just at the 49th parallel or international boundary line.

The morning of the 20th of August was thick and hazy, with occasional showers of rain, which entirely prevented me from obtaining the good view of the country which I had hoped for, having seen but little in the uncertain light of the previous evening. I therefore travelled on, crossed Crownest River, and soon after noon gained the entrance of the Kootanie pass, where another of the branches of Belly River issues from the mountains. Here we struck a narrow but tolerably well-beaten track, which the Indian informed us was the Kootanie trail, by which these Indians had crossed the mountains the past spring. Making a turn therefore to the W.S.W., nearly at right angles to our former course, we followed this track, which led up a narrow valley along the left bank of the river, and between high wooded hills; the travelling was good, for we were on the even grassy river levels, and we camped at a spot where a small mountain stream entered the river from the north.

We were now fairly in the mountains, and had already overpassed the spot where our Indian guide knew anything of the road but by report; he knew that if all went right we should be some three or four days in crossing, and had been told that there was but one track, and that we were not likely to miss it. It may be asked, why was I without a guide? The fact was, that a guide had been allotted to me by Mr. Palliser, but on leaving the camp of the expedition on Bow River, I had started without him on account of the sickness of his wife. He promised to start the following morning and overtake the party; which he failed to do. It will be seen subsequently, however, that I did not suffer by his absence, and I am now glad that he was not of the party, for I have no great faith in the so-called "guides," and think they are seldom worth their pay.

The entrance of this pass is in latitude  $49^{\circ} 34' N.$ , and longitude  $114^{\circ} 34' W.$ , being (consequently) 40 English miles north of the boundary line. I have omitted to insert the latitude and longitude of points where I obtained observations, because by referring to the map the geographical position of any place may be seen.

We started at 5.40 in the morning, with the sky overcast and a drizzling rain, and soon entered thick woods and uneven ground, with a great many fallen trees, which caused the horses to travel slowly. We continued travelling in this way and gradually ascending along the course of a small creek running into Railway River, which we had left where the trail parted from it; this river was so named by me from the striking advantage offered by its "levels" for the entry of a railway into the mountains. Gradually the stream became less and less until after gaining considerable altitude it dwindled into a small quantity of water falling in a cascade. Here we passed Hero's Cliff, an enormous vertical escarpment, facing the east, of hard red sandstone or quartzite, with the strata dipping at least  $45^{\circ}$  to the west. We now rose rapidly as will be seen by reference to Section No. 1 (the Kootanie Pass); the trees became smaller, and we soon reached the region of rock and alpine plants; here were some large patches of snow and a couple of ponds of clear water; we passed over a quantity of debris of hard grey limestone, of which the peaks on our right hand, namely to the N.W., were composed. As we were now clear of all shelter, we felt the cold damp east wind, which blew a fresh breeze, and drove along scudding clouds which prevented any extensive view. We were now on the watershed of the mountains, the great axis of America; a few steps farther and I gave a loud shout as I caught the first glimpse in a deep valley, as it were at my feet, of a feeder of the Pacific Ocean. It was the Flathead River, a tributary of the Columbia. At the same moment the shots of my men's guns echoing among the rocks announced the passage of the first white man over the Kootanie Pass. I halted for the purpose of reading the barometer, which showed an altitude of 5,960 feet. It was just five hours since leaving our previous night's camp, at an altitude of 4,100 feet.

This is no place for a dissertation on the physical geography of North America, but I may simply state, that in that portion of the Rocky Mountains comprised between the parallels of  $45^{\circ}$  and  $54^{\circ}$  north latitude, rise the four great rivers of the continent, namely, the Mackenzie, running north to the Arctic Ocean, the Saskatchewan east to Hudson's Bay, the Columbia west to the Pacific, and the Missouri south to the Gulf of Mexico; thus we may say, that in a certain sense that portion of the mountains is the culminating point of North America, and I now, on the Kootanie Pass, stood as nearly as possible in the centre of it.



A rapid descent of two hours brought us to the Flathead River, a clear and quick running stream, dividing a beautiful partially wooded valley enclosed by mountains; here we halted soon after mid-day, having passed the great watershed, and descended again 1,400 feet without breakfast.

During Sunday I did not move from my pleasant camp, where was wood, good water, and good pasturage, everything to be desired by the traveller. I was engaged in obtaining observations for latitude and longitude, and computing them, writing up my notes, &c.; and I also made a sketch of the mountains over which we had passed the previous day. The men brought in some ducks, grouse, and trout, which made an agreeable change in our diet; two or three humming birds were seen about the camp.

The track now led up to the course of Flathead River, through thick forests with occasional openings, crossing several mountain streams, feeders of the river. We halted for breakfast on an open piece of swampy ground. On moving on again we plunged into thick forest, where the track was greatly obstructed by fallen timber. The Kootanies cut through a good many of the fallen sticks to allow of the passage of the horses, but still the greater number remain as they fall, and cause much twisting, turning, and branching of the track. We ascended gradually, passing a few fine pieces of open meadow, until we arrived near the head waters of the river, when the different streams composing it became mere mountain torrents. Here we commenced a steep ascent, the path ascending in a zig-zag up the hill; the trees, mostly spruce and fir, became smaller until we gained the summit of this knife-like ridge, from which an extensive view of the mountains was obtained. I halted to contemplate the scene, take bearings, and read the barometer, which showed an altitude of 6,100 feet. All appeared, however, utter confusion, such slight differences were there between the different mountains and ridges. One peak alone showed itself above the general surface. It lay to the northward about thirty miles distant, and I recognized it as "Gould's Dome," which I had previously remarked from the edge of the plains. I estimated it to be not more than 1,000 feet above my present position, which would give it an altitude of about 7,000 feet. The rest of the mountains appeared all about the same level, and but few of greater altitude than the ridge from which I surveyed them; there were visible the main range or watershed, then a number of ridges and mountains densely wooded, and of somewhat less elevation; after which, to the westward, higher mountains, the ranges generally taking a N.N.W. and S.S.E. direction. Such was the scene to the north of my position, but to the southward the mountains appeared to have no general direction, as many running crosswise as lengthwise. I was now on a height of land between two branches of the Columbia; the rock was the same hard grey sandstone as observed all along the base of the mountains on the east side, no granite showing anywhere.

Heavy dark clouds were gathering rapidly, and the louder and louder rumblings of thunder warned us of an approaching storm. We had descended but a few yards of the great western slope when the tempest broke with all its violence, and we were wet to the skin in a few moments; my own habiliments were far from waterproof, being simply a flannel shirt and pair of leather trowsers, with a striped cotton shirt over all. The descent was very steep, the horses having in some places difficulty in keeping their legs, although the path was zig-zag, and the continual descending on foot was very trying to the legs. After some distance, however, the descent became less steep, and we continued our course for a couple of hours before coming to any place fit for camping. Although camping in the woods is always to be avoided with horses, we were at length induced to halt from the appearance of some old skeletons of Indian lodges, not knowing how far we might have to travel before coming to any open place; and we camped, for the first time, in a Columbian forest.

The change in the vegetation was first made evident to me on descending the mountain, by the appearance of a beautiful and regularly formed cedar, which, for the sake of remembering the tree, I then called the "Columbian Cedar." It flourished at an altitude of about 5,000 feet, and I subsequently observed it as low as 3,000, but I feel doubtful as to whether it descends to the Tobacco Plains. Besides this I found, to me, a new *abies* something like the balsam fir of the Atlantic slope, but with a rough bark, and growing to a large size; the spruce and supposed Bank's pine remained with a few balsam poplar and birch, some of good size; also maple and alder as underwood. A new larch appeared, an elegant tree; and around our camp were the dead stems of many deprived of life, no doubt in years past by fire, rising to an immense height, and tapering upwards perfectly straight, without a limb, to a fine point.

The next day we travelled on through these forests, continually descending, and before noon arrived at Wigwam River, where it passes between two high rocky hills, which, from their imposing appearance from this spot, I called the North and South Bluffs. The bed of the river was deeply cut in the valley and exposed grand sand cliffs from two to three hundred feet in height, portions of these cliffs were broken, and pinnacles and blocks of different forms were left, having at a short distance a most fantastic appearance. The track leaving the river and ascending a steep bank, carried us for five miles over a very rocky piece of country, where the trees were of stunted growth from want of soil, to the junction of Wigwam River with the Kootanie Fork of the Columbia, or its tributary the Elk River. The former was forty yards wide and two to three feet deep, and the latter sixty yards across with a depth of four to six feet, both running with a swift current, their beds being rocky and stony. The Kootanie Fork could be seen coming down a valley from the N.N.W., from near a well-marked mountain about twenty-seven miles distant, which has been called "The Steeples." I believe that not far above the Wigwam tributary another, called the Elk River, comes in from the north, down a long narrow valley in the mountains. We descended about 300 feet, crossed the small river, and having lost the trail, camped for the night, the Indian's opinion being that we must also cross the main river, which would have occupied more time than the decreasing daylight would allow us. On going lower down the river in search of a better crossing place, I luckily struck on the proper



trail leading up the side of the river bank towards the south; so we turned in that night with the satisfaction that we were still to travel in the morning on dry land.

To the west of us, on the other side of the river, was a level partially wooded country, a portion of the Tobacco Plains, which, as will be seen by reference to the plan, is a tract of country of about 10 miles in width, stretching from near Mount Sabine on the north to the southward of the boundary line, bounded on the west by low wooded hills, and skirting the foot of Galton's Range on the east. The Kootanie Fork in its southern course traverses these plains.

Being now at the western extremity of the Kootanie Pass, I will pause to point out the capabilities it affords for a railway across the mountains within the British possessions. I should premise that I have not sufficient evidence to be able to state that the Kootanie Pass is absolutely the most advantageous place for the crossing of a railroad from the Saskatchewan Plains to the Pacific, because the mountains to the north have not yet been sufficiently explored; but I am able to say that it is the most southern line within the British territory, and, as yet, by far the shortest; moreover, I have every reason to believe that the most suitable portion of the mountains for the passage of a railroad will be found to the south of Bow River.

The Kootanie Pass crosses the Rocky Mountains from the Great Saskatchewan Plains on the east, to the Tobacco Plains on the west, its extremity on the former side being 40 and on the latter 18 English miles to the northward of the international boundary, the 49th parallel of north latitude. Its length is 40 geographical or nearly 47 English miles, extending from longitude  $114^{\circ} 34'$  to  $115^{\circ} 24'$  west. It leaves the Saskatchewan Plains where they have an altitude of about 4,000 feet above the sea, rises 2,000 feet to the watershed of the mountains, descends to Flathead River, again to an altitude of 4,000, follows up this river to its head waters, then crosses a precipitous ridge, reaching an altitude of 6,000 feet; it then descends the great western slope, falling 2,000 feet in two miles of horizontal distance, after which, by a nearly uniform grade of 100 feet per geographical mile, it gains the Tobacco Plains at the point where the Wigwam branch enters Kootanie or Elk River.

By reference to Section No. 1, it will be seen that there are three obstacles to the passage of a railroad; namely, two mountains and one steep slope. As to the mountains, they could, I consider, without difficulty be pierced by tunnels. The great western slope is a more serious obstacle; however, in the following details I hope to show that it also may be overcome.

From the forks of Belly River on the east side the line would traverse the gradually ascending prairie to the entrance of the pass where Railway River issues from the mountains. This river would be followed up with a grade of 1 in 180, or 34 feet per geographical mile for  $7\frac{1}{2}$  miles, the "river levels" affording considerable advantages; leaving this river it would follow the course of my track marked on the map. A cutting of about  $3\frac{1}{2}$  miles would lead to a tunnel of nearly 5 miles in length, which would pierce the Watershed mountain, and come out in the valley of Flathead River, the whole having a grade of 1 in 130, or 47 feet per geographical mile. On emerging into the valley, the line would skirt the base of the mountains to the north of the track, thereby avoiding a steep descent, then following up the river with a grade of 40 feet per geographical mile, it would reach the rise of the western ridge at a height of 5,100 feet above the sea. This would be the culminating point of the line, from which in a distance of 10 geographical miles it has to fall 1,900 feet to the North and South Bluff, and after that, by a slope of 54 feet per geographical mile for five miles, to reach the Tobacco Plains, crossing the Kootanie Fork by a bridge. This I propose to accomplish in the following manner:—From the culminating point, to pierce the ridge by a tunnel of three geographical miles, and continue the line along the side of the hills to the north of the track until reaching the North Bluff, the whole with a grade of 190 feet per geographical mile. This portion of the line of ten geographical miles would have to be worked by a wire rope and one or more stationary engines. Regarding the remaining five miles to the west of the North and South Bluffs, a careful survey is required to determine whether a grade not too steep for locomotives can be made. My measurements, taken with so uncertain an instrument as an aneroid barometer, must not be depended on to a few feet; they give a fall of 54 feet per geographical mile, or 1 in 112.

As regards the country to the west of the Kootanie Fork I can say nothing, but that no mountains were visible to the distance I could see, neither have I any personal knowledge of the Saskatchewan Plains to the eastward of the forks of Belly River; but it is probable that these great prairies stretch without break from this point to the Red River Settlement, and that in the construction of a railroad little more labour would be required than that of laying down the rails. The following statement of distances to be traversed by a railroad to the Pacific within the British territories may be of interest:—

	Geog. Miles.
Lake Superior to Red River Settlement - - - - -	320
Red River Settlement, <i>via</i> Elbow of South Branch of Saskatchewan to Rocky Mountains - - - - -	700
Kootanie Pass - - - - -	40
West End of Kootanie Pass to Mouth of Fraser's River, Gulf of Georgia	300
Total, Lake Superior to Pacific - - - - -	<u>1,360</u>

Probable length of railroad, 2,300 miles English.

Thus it will be seen that out of the whole distance one-half is over level prairies, and but 40 miles through mountains.

To resume the narrative of my journey:—On the morning of the 25th of August at starting we were obliged to climb the face of a steep hillside for the purpose of keeping on the left bank of the Kootanie Fork or Elk River, which here sweeps in close under an outer range of the mountains, having a north and south direction, and which I have called "Galton's Range." We gained a considerable altitude above the river which ran at our feet, and of whose course I had a view for some distance. The banks were vertical and rocky, and the stream appeared to continue swift. Both horses and men had enough to do in climbing up, and then coming down again from the heights. I was well repaid for my climb by the remainder of the day's travel, which was through magnificent open forests with patches of prairie sometimes of considerable extent. These forests were the finest it had been my good fortune to see. A splendid species of pine and the larch previously spoken of, with their bright red barks, rose from the ground at ample distances; no brushwood encumbered their feet or offered impediment to the progress of waggons, which might move in every direction.

As we advanced along the prairie the trail forked, and our Indian took the branch which led nearest the river, as from information he had received he believed it to be that which led to the trading post. Towards evening, according to my reckoning, we crossed the boundary line, and camped about two miles within the American territory, and not more than a mile from the river. In a few minutes a Kootanie Indian came to us on horseback. My Indian guide "James," knowing but a few words of his language and a little Blackfoot, and he not knowing one word of Cree, we had some difficulty in comprehending that he wished to inform us that there were no people at the trading post, which he described as being quite close. A small present of tobacco and something to eat were thankfully received by him, and he took his leave. Shortly after there came several more from the same camp, having a chief among them. They were mounted on good looking horses, and raced up to our camp as hard as they could gallop, no doubt with the idea of creating an impression. The evening was spent in a talk with them, one of them understanding Blackfoot. It was dark before they took their departure, having promised that they would meet us in the morning at the trading post, to guide us to their camp, where they wished us much to come, saying they had some provisions.

Following the track still S.S.W. the following morning in a thick fog, we came on the river, and within a few hundred yards found three diminutive log houses. Two of them, not over ten feet square, and to enter which it was necessary to crawl through a hole as an apology for a door, had evidently been used for dwellings; the other, somewhat larger, without a chimney, we were informed was the Kootanie chapel which had been erected the previous spring when a priest was there.

The Kootanies afterwards informed me that white people always come in the fall, remaining the winter trading with them, and returning to Colville, eight or ten days' journey, in the spring. These are the Hudson's Bay Company's people, and this post is what figures on maps in large letters as "Fort Kootanie." I remained here till noon, and obtained observations, which placed the post in latitude  $48^{\circ} 55' 5''$  N., and longitude  $115^{\circ} 31' W.$ , thus a little over five English miles south of the boundary.

In the afternoon I rode four miles across prairie in an easterly direction with a chief, the pack animals following, and arrived at the Kootanie camp, where I was under the necessity of shaking hands with every man, woman, and child. The people had a rather dirty and wretched appearance, but their herds of horses, and some few horned cattle, showed that they were not poor.

Having pitched my tent at a short distance from the lodges of the Indians, which were in a pleasant situation near a small stream with some woods along it at the base of Galton's Range, I was soon inundated with presents of berries, dried and fresh, dried and pounded meat, and cow's milk. Of course, although no payment was asked, I paid these people for their food in tobacco, ammunition, &c.

Seeing that there was no chance of starving, I determined on remaining here some days for the sake of the horses; the next five days were therefore spent in trading, and exchanging horses, buying provisions, &c., and obtaining by actual observation and Indian report such knowledge of the country as I was enabled to do.

The weather was fine and generally calm, but rather warm, the thermometer ranging from  $47^{\circ}$  to  $82^{\circ}$  in the shade. I should have said, that in my passage over the mountains I had experienced no cold nights, the temperature at sunrise being usually about  $50^{\circ}$ , once only so low as  $37^{\circ}$ .

I made an excursion to the north of the boundary with my sextant, to obtain as near as possible the precise position of the line; I found no remarkable feature to mark it, but noted the place where it crossed the hills. I also obtained a sketch of the mountains to the northward, Mount Deception, or, as I had myself named it from its peculiar form, "The Steeples," standing out quite distinct from the rest. I may here say, that it was in the neighbourhood of this mountain that Mr. Paliiser, following the old emigrant pass which he had entered at Bow River, emerged from the mountains after a six or eight days' journey; he then recrossed by the Kootanie Pass, which I had previously explored.

I found the Kootanies communicative, and from them gathered the following information:—

That Colville, an American settlement on the Columbia, was about eight or ten days' journey with pack horses, and that they could descend to it by the river in canoes, but there were too many falls and rapids to admit of its being ascended; that the Flathead River, which I followed up in the mountains, runs to the south and joins Clark's Fork of the Columbia, on which is the Flathead Mission, which they described as three days' riding south of this; that there are large lakes to the N.W. of the Kootanie Post, from one of which a small river flows and joins the Kootanie Fork before it falls into Clark's Fork.

They also told me that there was a pass entering the mountains a little to the southward of their camp, and which came out on the east side near the Chief's Mountain; that there were long hills, but



not so steep as to the Kootanie Pass, and that they used it sometimes when the horses were heavily loaded. This information of another pass in a portion of the mountains that I knew should be explored caused me at once to decide on recrossing the mountains by this pass, although I knew that it must be wholly or partially on American ground. I, therefore, prevailed upon a Kootanie to accompany the party across as guide.

There are some considerable tracts of the Tobacco Plains which are prairie. The grass, however, does not grow close and thick, but in small bunches with bare ground between, and the pasture is nothing to be compared in appearance to that at the base of the mountains on the east side. This is perhaps chiefly owing to the nature of the soil, which in the latter case is a black mould, while on the Tobacco Plains it is sandy, and in most parts stony. At this season the grass was quite dried up and yellow.

As to the Kootanie Indians, their language at once strikes one as being most guttural and unpronounceable by a European, every word appearing to be brought up from their lowest extremities with difficulty.

They are nearly all baptized Roman Catholics, and are most particular in their attendance at morning and evening prayers, to which they are summoned by a small hand-bell. They always pray before eating. On the Sunday that I spent with them their service, in which is a good deal of singing, lasted a considerable time. One of their number preached, and seemed to be well attended to.

Their food at this season appears to be almost entirely berries; namely, the "Sasketoom" of the Crees, a delicious fruit, and a small species of cherry, also a sweet root, which they obtain to the southward.

They grow some little wheat and a few peas; a patch of the former, about forty yards square, which I saw near their camp, although rather small-headed, looked well, a proof that this grain thrives in latitude  $49^{\circ}$  at an altitude of 2,500 feet above the sea.

They possess more horses than any Indians I have seen or heard of on the east side, a camp of only six tents having about 150 old and young. They also, in their treatment, are kind to and show some knowledge of the animal. They are adepts at throwing the lasso, being brought up from their youth to its use. They possess a certain amount of domestic cattle, six tents having twelve or sixteen head; and I heard of some individuals at a distant camp who owned as many as twenty or thirty each.

They are perfectly honest and do not beg, qualities which I have never yet met with in any Indians. I extract the following from my journal, written on the spot:—"On now taking leave of the Kootanies, with whom I have been camped for nearly a week, it is but justice to say, that they have behaved in a very civil and hospitable manner; and although our clothes and other articles have been lying about in all directions, we have (with the exception of some hide lines, mocassins, and other articles of leather, which the half-starved dogs have eaten) not lost a single article." Whether this honesty is to be attributed to the knowledge of Christianity spread among them by the ministers of the Roman Catholic church, or whether it is innate in them, I can only say that it is a great contrast to the effect produced by the missions in the Indian territory on the east side.

The Tobacco Plains form the country of the Kootanies, but every spring and fall they cross the mountains to the Saskatchewan Plains for the purpose of killing buffalo; they return with supplies of dried meat, &c., with which they trade for blankets, knives, tobacco, &c. with the Hudson's Bay Company's traders at the Kootanie Post. They also sometimes cross during the latter part of winter, when there is sufficient crust on the deep snow of the mountains, on snow shoes, also for the purpose of obtaining provisions, for there is little or no large game on the west side.

On the 2d of September I set out on my return journey across the mountains. The morning was clear and sharp, the thermometer being two degrees below freezing. After I had lost sight of the Kootanie camp, and was riding ahead of my party on a S.S.E. course over undulating prairie, I felt satisfied that I had done all that came under the spirit of my instructions, and was happy to be able to recross the mountains by another unexplored route; my only regret was, that this time it was not my fate to see the Pacific.

Leaving the Tobacco Plains at a point where they were pretty thickly wooded, we followed a narrow trail which, turning the south end of Galton's Range, followed up a small creek towards the north-east. We crossed a considerable mountain stream coming down a valley from the north, which, as it may be of use to the Boundary Commission, I have taken care to mark, and camped at an altitude of 4,070 feet. The following day we crossed soon after starting some high land, and then descended for the remainder of the day through thick woods till we arrived in the valley of Flathead River. The day after we descended by successive steps to the Flathead River, where it is joined by a creek from the N.W. Here I remained till noon for the purpose of fixing the position of this part of the river, which was just twenty-five miles south of where I had fallen upon it in my progress westward. Several peaks of the mountains showed well from this valley, and I did not lose the opportunity of sketching. A storm coming on drove me to camp earlier than I had intended. We halted on the creek spoken of, and only about half a mile south of the boundary, which, according to careful bearings, crosses just over a mountain, which itself has its length nearly in the exact direction of the line. Much rain fell in the afternoon, and by the next morning, Sunday, had changed for snow, which continued nearly all that day, giving the mountains a good white coat.

On Monday the 6th of September we regained British ground immediately on starting at 6 A.M.; we travelled up the creek till 10, when we halted for breakfast. It was cold, raw, and clouded. Here we found that the Kootanies, four men and two women, with whom we were travelling, and who had camped here on Saturday, had started this morning for the traverse of the mountains. Suspecting that we had a good day's work before us, I delayed as little as possible at breakfast, and

in less than an hour and a half we were again under weigh travelling up the course of the creek, which has some picturesque falls and cascades, caused by the inclined strata of red shale and sandstone. After two or three miles we began a steep ascent, and were soon on ground entirely covered with snow, in which the tracks of the Kootanies who had gone before us were visible. We passed along the edge of a very steep hill, and it was as much as the horses or ourselves could do in some places to keep footing. We now descended, crossed a thickly wooded gully, and then commenced the ascent to the water-shed through thick wood. The snow increased in depth as we ascended until, on arriving at the crest, it was two feet on the level, and in places heaped up to double that depth. It was cold work trudging through the snow in thin leather mocassins without socks; and, to make matters worse, it was blowing and snowing all the time. I, however, on arriving at the water-shed, with the assistance of the Indian "James," whom I always found most willing, unpacked the horse with the instrument boxes, and obtained a reading of the barometer, which gave an altitude of 6,030 feet. We ascended *along* the ridge about 100 feet more, and then by a zig-zag track commenced a steep descent. It was not, however, very bad, and we soon arrived at a small mountain torrent flowing eastward, thus regaining the waters of the Atlantic after an absence of sixteen days. The trail continued mostly through woods down the valley due east. The rocks on the tops of the mountains on either side were often of very curious shapes, and the strata in places much contorted; there were also some magnificent cliffs, and the cascades of snow water falling down the narrow gullies added motion to the grandeur of the scene. The snow gradually decreased as we descended. On arriving at the spot where the valley joined another I found the Indians camped on a patch of prairie, where I was glad enough to let my horse free, as we had travelled this day from six to six, with a halt of only  $1\frac{1}{2}$  hours.

The horses had the first half of the following day to rest, and I took the opportunity of testing my aneroid barometer by the boiling water apparatus, making the ordinary observations, and taking a sketch of a very peculiar peak just above our camp. After two hours' travelling on level ground along Red-stone Creek we emerged on the Saskatchewan Plains, just six geographical miles north of the 49" parallel, and camped at Waterton Lakes, two miles east of the mouth of the pass.

The position of the Waterton Lakes, as will be seen on the plan, is just where the offset range before spoken of strikes out to the eastward from the main chain, having the Chief's Mountain at its extremity. The uppermost and largest of these lakes lies in a gorge in the mountains, and is crossed by the boundary line. The scenery here is grand and picturesque, and I took care to make a sketch from the narrows between the upper or southernmost and second lake.

I was here fortunate enough to discover a stunted species of pine which M. Bourgeau, the botanist of the expedition, had not obtained. I gave him the specimen of this, as well as of some ferns and other plants which I had collected.

I was much struck by the comparative greenness of the prairies on this side, after the burned-up appearance of the Tobacco Plains, which we had left but a few days.

I remained camped at this pleasant spot two whole days for the sake of the horses, and in order to examine more carefully the nature of the country. Game was abundant, including grisly bears, and we obtained both fresh meat and fish. The trout and pike in the lakes were of large size.

The Chief's Mountain was not visible from the camp, but I obtained a good view of it from a knoll on the prairie about four miles distant, which with my previous bearings enabled me to lay it down, and curious enough, the boundary line passes just over this peculiar shaped mountain, which stands out in the plain like a landmark. I also made a sketch of it.

It will be seen that some of the waters of the Saskatchewan take their rise from the offset range at the boundary line, and from information gained from the Indians, I believe there is a tributary of the south branch, which rises to the southward of the Chief's Mountain, this may be the Bull-pound River of Arrowsmith; if so, this offset range has nothing to do with dividing the waters of the Missouri and Saskatchewan, and some of the waters of the latter must come from American ground.

We experienced a gale of wind from the south-west on the night of the 7th, which on the following morning ceased very suddenly, and an opposing wind from the north brought rain and snow, which gave another coating of white to the mountains. This corner of the mountains appeared to be a very windy spot, and when it was not blowing much on the plain, a strong breeze came from the south down the gorge in which is the Upper Waterton Lake.

On the 10th of September I turned my face towards Fort Edmonton, the previously appointed winter quarters of the expedition, which lay more than three hundred miles to the north, and as will be seen on the plan, passed several creeks, and over a country mostly prairie. I remained at the Forks of Belly River on Sunday the 12th. From this place I visited a camp of forty-five tents of Blackfoot Indians, accompanied by one of my men and "James," the Cree Indian. I was received with the usual hospitality, and having expressed a desire to change a horse or two, I had no trouble the following morning in exchanging one and buying another for ammunition, tobacco, blankets, old coat, &c. This tribe has the credit of being dangerous, but from what I have seen of them, I consider them far better behaved than their more civilized neighbours, the Crees. I made it a rule never to hide from Indians, and, although I had but a small party, to go to them as soon as I knew of their proximity. I also always told them for what reason the British Government had sent the expedition to the country; and I never failed to receive manifestations of goodwill, neither was there one attempt made to steal my horses, a practice only too prevalent among the Indians of these plains.

I need not describe my northward journey; suffice it to say that I kept to the east of my former track, along the base of the mountains, except when I turned in for the purpose of raising the cache. I rested at Bow River on Sunday the 19th, travelled over prairie till crossing Red Deer River, the



other fork of the south branch of the Saskatchewan, on the 23rd; then passing through a partially wooded country, which I had surveyed in the summer, arrived at Fort Edmonton on the north branch on the 29th September.

In this account of the return passage of the Rocky Mountains, by what I have called the Boundary Pass, I have not entered into such details as in the case of the Kootanie Pass, because, as will be seen by the accompanying plan and sections, more than one half of it lies in American ground; but I have given the same amount of attention to the mapping of it, as I considered a knowledge of that portion of the mountains would be of service to the International Boundary Commissioners at present engaged on the west side. Moreover, I do not consider the Boundary Pass so well suited for the passage of a railroad as the Kootanie Pass.

It will be perhaps noticed that I have said nothing concerning the fitness of the Kootanie Pass for a waggon road. My reason is simply that where a railroad can be constructed, a waggon road can also be made; without considerable expense a road could not be made to pass *over* the two high points (through which a railroad would tunnel) in the line of the pack-horse track followed by me; but I have no doubt by taking more circuitous routes, both of these heights might be passed by slopes adapted for wheel carriages. In other parts the road would follow the line proposed for the railroad.

I have not mentioned the existence of two other passes across this portion of the mountains, called the Crow-nest and Flathead Passes, the former in the British and the latter in American territory.

The Crow-nest Pass, of which I have marked the general direction on the plan, follows up Crow-nest River, a tributary of Belly River, into the mountains, and gains the west side near "The Steeples." By report of the natives it is a very bad road, and seldom used. I observed the old trail coming in from the plains on the left bank of Crow-nest River.

The Flathead Pass enters the mountains at the 49th parallel of latitude, follows the west shore of Lake Waterton, and gains Flathead River, which it follows to the Flathead Mission on Clark's Fork of the Columbia, about 80 miles south by east of the Kootanie Trading Post. It is used by the Flathead Indians when crossing to the Saskatchewan Plains for the purpose of obtaining buffalo meat.

Fort Carlton, Saskatchewan River,  
December 15, 1858.

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BRITISH NORTH AMERICA.

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REPORTS OF PROGRESS,

TOGETHER WITH

A PRELIMINARY AND GENERAL REPORT,

ON THE

ASSINNIBOINE AND SASKATCHEWAN  
EXPLORING EXPEDITION;

MADE UNDER INSTRUCTIONS FROM

THE PROVINCIAL SECRETARY, CANADA.

By HENRY YOULE HIND, M.A.,

PROFESSOR OF CHEMISTRY AND GEOLOGY IN THE UNIVERSITY OF TRINITY COLLEGE, TORONTO,

IN CHARGE OF THE EXPEDITION.

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Presented to both Houses of Parliament by Command of Her Majesty,  
*August 1860.*

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FOR HER MAJESTY'S STATIONERY OFFICE.

1860.





COPY of a LETTER from Professor HENRY YOULE HIND to his Grace the Duke of NEWCASTLE.

MY LORD DUKE,

London, July 16, 1860.

IN October last I had the honour to send to your Grace the proof sheets of a part of my Report on the Assiniboine and Saskatchewan Exploring Expedition, with topographical and geological maps, and a number of photographs of the houses, churches, forts, native races, and scenery at Lord Selkirk's settlement on Red River.

I now respectfully beg leave to transmit to your Grace a complete copy of the Report and maps as published by order of the Legislative Assembly of Canada, in the English and French languages.

His Grace the Duke of Newcastle,  
&c. &c. &c.

I have, &c.  
(Signed) HENRY YOULE HIND,  
In charge of the Assiniboine and  
Saskatchewan Exploring Expedition.

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Enclosure.

REPORTS OF PROGRESS.

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INTRODUCTION.

The interest manifested by the Government and people of Canada in the North-West territory, and particularly that portion of it described in the following pages, appears to call for a precise description of the manner in which the exploration was conducted. An enumeration of the data and of the sources of information embodied in the accompanying maps, sections, and plans, may also be acceptable.

With a view to anticipate and satisfy a very reasonable demand, I give below a brief description of our mode of observing and recording the natural features of the country through which we travelled. I do not suppose that the method pursued possesses the slightest novelty, or that it is not susceptible of improvement, but in view of the wide extent of country it was desirable to describe and delineate during one season of five months, it was, after much consideration and the experience of the previous year, thought to be the best we could adopt.

My instructions, as regards objects to be observed and facts to be recorded, were precise and exact; but with reference to the exploration of particular sections of country, his Excellency the Governor-General, with a generous and encouraging "confidence in my judgment and discretion," left me at liberty to make any other exploration in addition to those specially mentioned.\*

At the outset it was agreed to employ certain descriptive terms in noting the features of the country, which the experience of the previous year enabled us to select, in order to record an accurate and uniform representation of different objects of the same kind, in case separate parties should be formed from time to time.† A little experience in Rupert's Land shows the necessity of this precision. A tract of country may be wooded and described in a report, or delineated on a map, as a "wooded country," conveying the idea that timber covers the surface and might afford a supply of that indispensable material for building purposes and fuel; but in Rupert's Land, west of the Low Lake Region, in nine cases out of ten, the "woods" consist of small aspens very rarely exceeding six inches in diameter, or 25 feet in altitude; hence it has been a point always to state the kind and dimensions of the timber we saw. The same remark applies to the use of the word "prairie," and to prairie

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\* "I am to add that his Excellency, having every confidence in your judgment and discretion, does not wish to trammel you with more detailed instructions, and that you are left at liberty to make any other exploration, in addition to those particularly named therein, should you, upon information obtained in the locality, deem it desirable for the general purposes of the expedition."—Paragraph 14, Instructions No. II., page 19.

† See Appendix.



country; prairies, or plains, may be level, rich, and dry, sustaining luxuriant grasses, and affording splendid pasturage; they may be marshy and wet, or undulating and stony, or sandy and barren, or salt and herbless, or arid and consequently sterile. Such indefinite and often inapplicable terms as "open prairie," "rolling prairie," "alluvial prairie," not unfrequently employed in describing without limit as to space, the vast unpeopled wastes,—often beautiful and rich, often desolate and barren,—of the great North-West, are sometimes both physically and geologically wrong, and serve to convey the impression that the large areas to which they are applied possess, if not a fertile, at least not an unkindly soil or an arid climate, rendering husbandry hopeless. Alluvial areas are usually the best and richest tracts, and while the term may with strict propriety be applied to the bottoms of the Assinniboine or parts of the Saskatchewan Valley, it would be wholly inapplicable to much of the country on their high prairie banks, and to nineteen-twentieths of the prairies or rather plains of Rupert's Land. An endeavour to adhere to a faithful description of the features of the country, whether good, indifferent, or bad, has involved a repetition of terms in these pages and on the maps which the foregoing remarks will explain.

#### THE TOPOGRAPHICAL MAP.

My instructions on the subject of a map of the country were precise (paragraph 11, page 13); the exploration was to be made with reference to the construction of a map as complete as possible of the region explored, on a scale of two miles to one inch, and the operations were to be conducted in view of a possible extension at some future time, of the exploration, so as to embrace the entire valley of Lake Winnipeg and its feeders.

The extent of the data upon which the delineation of the map is based, will be seen at a glance in the ITINERARY. Attention is here particularly called to the fact, that whatever has been the result of personal observation, or rests upon authority respecting which there can be no doubt, is marked in *continuous* lines. Selkirk Settlement, showing the limits of parishes, the position of churches, and forts, &c., is reduced from an authorized instrumental survey by the Hon. Hudson's Bay Company's Surveyor, Mr. Taylor. The original was kindly furnished me by Mr. Mactavish, now Governor of Assinniboia.

The dotted lines on the map show those parts of the country which were not visited, and the data upon which they are laid down is derived chiefly from the large manuscript Map of the North-West in the Crown Lands Office, by the late excellent but neglected geographer, David Thompson,\* or from reliable information obtained in the country. While the Itinerary gives a general idea of the mode in which the time was occupied when in the field, our field books themselves contain the record of every hour's and often of every five minutes' employment. They have been kept in strict accordance with the regulations established at starting,† and they supply a full and complete record of the manner in which the several parties were employed. A reference to any part or parts of the continuous lines on the Topographical Map can be found in the field books at once, together with the hour and minute at which the observation was made; a remark which applies to the whole time we were in the field, from the 14th June to the last day of October. All portions of the map drawn with a continuous line were plotted according to instructions, on a scale of two miles to one inch, or  $\frac{1}{125000}$  and afterwards reduced by pentagraph to a scale of six miles to one inch, or  $\frac{1}{375000}$ .

#### THE SECTIONS.

The dimensions of valleys were ascertained either trigonometrically or by the level and chain. The breadth of the Saskatchewan was ascertained by triangulation. Rivers such as the Assinniboine, the Souris, the Qu'Appelle, were measured by a line stretched across, and the depth ascertained by a sounding pole at stated intervals. The depth of the Saskatchewan was determined by paddling at a uniform rate across the stream, and sounding at stated intervals, performing the operation two or three times, and taking the mean. The fall of different rivers was frequently observed with the level. Tables showing the leading dimensions of valleys, rivers, and lakes, determined by these methods, will be found on pages 45 and 66; of the volume of water discharged, pages 38 and 75; and of the depth, rate of current, temperature, &c., in the text and on the map, where a line of soundings through the Great Lakes and their connecting rivers is also shown. These measurements were made in accordance with the instructions contained in paragraph 8, page 13.

#### THE GEOLOGICAL MAP AND SECTIONS.

The geographical outlines are reduced from the Topographical Map of the Expedition. The scale is 24 miles to an inch, or  $\frac{1}{150000}$ . The manner in which the approximate limits of formations were obtained, is explained and discussed in the text. For the determination of the Cretaceous fossils, I am indebted to Mr. F. B. Meek, who ranks as the highest authority on this continent on fossils from the secondary rocks. I am happy to have this opportunity of expressing my thanks to Mr. Meek for his very valuable co-operation. The excellent paper contained in chapter XIX., proceeding from such an authority, gives a value to that portion of the Report and Map which will be appreciated by geologists.

\* The labours of this remarkable man are only now beginning to be appreciated. His map of the boundary line, according to the Treaty of Ghent, between British America and the United States, from Lake Superior to the Lake of the Woods, is an admirable piece of work. We recognized every portage as we came to it last year, although Thompson's Survey was made in 1826. It is much to be hoped that his numerous works, the results of thirty years' labour in the North-West, will soon be published by the Government.

† See Appendix.

Mr. Billings, the distinguished palæontologist of the Canadian Geological Survey, has not only determined the Silurian and Devonian specimens, and described some new species, but he has also lent his invaluable assistance in superintending the preparation of the drawings and wood-cuts of the specimens figured at the close of this Report. Mr. Smith, the artist in connexion with the Geological Survey of Canada, has executed the drawings under the superintendence of Mr. Billings.

#### THE PHOTOGRAPHS.

Arrangements have been made to publish a number of copies of some of the photographs taken during the exploration. It is, however, much to be regretted that the negatives of those taken on the Souris, the Assiniboine, and Qu'Appelle were left at Selkirk Settlement, in direct opposition to my expressed wishes. An effort to procure them during the last summer has not been successful; the box in which they were stated to have been placed has arrived, but without containing the photographic negatives.

I am indebted to Professor Hincks, of University College, Toronto, for the names of a small collection of plants illustrating the prevailing prairie flora in some fertile districts.

Paragraph No. 15 of the Instructions calls for a short notice: "It is hardly necessary to state that you will be held responsible for the conduct, diligence, and fidelity of the party under your charge." To say the least, this is a difficult responsibility; the party, it is known, consisted besides myself, of Mr. Dickinson, surveyor and engineer, Mr. Fleming, assistant surveyor and draughtsman, and Mr. Hime, photographer. The excellent Reports of Mr. Dickinson and Mr. Fleming, and the maps at the close of this volume, speak for themselves; but I should feel that I was neglecting an important duty if I did not specify more particularly my obligations to these gentlemen. Both Mr. Dickinson and Mr. Fleming conducted important branch explorations, and it is with perfect confidence I refer to their narratives and reports. Associated with them almost hourly since July 1857, it is with much regret on my part that the completion of this volume closes our present connexion. Few but those who have been engaged in a responsible work, in a wild and distant country, can appreciate the worth of conscientious, talented, and most trustworthy friends, and there are equally few who can conceive the pain and anxiety which the absence or temporary suppression of these qualities in a companion is capable of inflicting, when circumstances will not permit avoidance or separation.

II. Y. II.

Toronto, 1859.

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## R E T U R N.

TO AN ADDRESS from the LEGISLATIVE ASSEMBLY to his Excellency the GOVERNOR GENERAL, dated the 20th instant, praying his Excellency to cause to be laid before the House, "Copies of all Reports and Communications of the Assinniboine and Saskatchewan Exploring Expedition, under the charge of Professor H. Y. Hind, during the year 1858."

By Command,

C. ALLEYN, Secretary.

Secretary's Office, Toronto, 29th April 1859.

## COPY OF INSTRUCTIONS.

## No. I.

SIR,

Secretary's Office, Toronto, April 14, 1858.

DURING the last week I communicated to you, verbally, instructions in reference to the proposed Expedition to the neighbourhood of the Red River during the present year.

2. It has been decided, as you are aware, with a view to keep down as much as possible the expenditure this year, to dispense with the services of Mr. Gladman as its general manager.

3. The exploration party this year will consist of two divisions, one to be placed under your direction and control, and the other under the direction of Mr. Dawson.

4. His Excellency in Council has been pleased to place under your charge the Topographical and Geological portion of the Exploration, respecting which full instructions will be given in another letter, while Mr. Dawson will continue to perform the same duties as last year, viz., those of surveyor, &c.

5. The estimate of the probable expenditure of the Expedition, submitted by you on the 6th instant, was laid before his Excellency in Council, and has been approved of by them, and I have accordingly now to direct you to be guided as much as possible by that estimate in engaging your assistants, hiring your men, as well as in the other necessary expenditures of the Expedition.

6. It is hardly necessary to say that his Excellency relies upon your exercising a due economy in all matters connected with the Expedition.

7. As soon as you have completed your contemplated party, you will furnish me with a schedule, giving the names of all the persons composing it, and stating their rates of pay, and the dates from which their pay is to commence. Such a schedule will be necessary to supply the auditor with the means of auditing your accounts.

8. Having organized your party, you will lose no time in repairing with them to Red River, taking with you the supplies (referred to in the estimate) required for Mr. Dawson.

9. On your way to the Red River, you will take possession of the canoes, provisions, and other articles belonging to the Government, either at Collingwood or Sault Ste. Marie. These, with the men intended for Mr. Dawson, you will deliver over to that gentleman when you meet him, either at Red River or on his way back.

10. You are to consider all the articles and materials of any description belonging to the Canadian Government, connected with the late Expedition, as available for the purposes of the present Expedition, and you and Mr. Dawson may therefore divide them between you in whatever way you may think most advantageous. Such articles, if any, as may not be required by either of you should be left in the custody of some trustworthy person to await the orders of the Government.

11. As soon as you shall have put Mr. Dawson in possession of the men and canoes intended for him, each of you will be held separately responsible for the expenses of his own party. You will, therefore, be careful to keep an accurate account of your expenditure.

12. The Auditor-General of Public Accounts will give you any information you may require as to the most convenient mode of making out and furnishing your accounts, &c.

13. On your return from Montreal I shall be prepared to give you your instructions with reference to the localities in which your explorations are to be conducted, and as to the objects to which your attention is to be more especially directed.

I have, &c.

(Signed) T. J. J. LORANGER, Secretary.

To H. Y. Hind, Esq., Toronto.

## No. II.

SIR,

Secretary's Office, Toronto, April 27, 1858.

I HAVE the honour to communicate to you the instructions promised in the last paragraph of my letter to you of the 14th instant, for your guidance in connexion with the branch of the expedition to the west of Red River, which has been committed to your charge.

2. The instructions contained in that letter will suffice for your guidance up to the time of your arrival at the Red River settlement, and the present instructions therefore have reference merely to your operations after having left that settlement.

3. The region of country to which your explorations are to be then directed is that lying to the west of Lake Winnipeg and Red River, and embraced (or nearly so) between the rivers Saskatchewan and Assinibone, as far west as "South Branch House," on the former river, which latter place will be the most westerly point of your exploration.

4. It will be your endeavour to procure all the information in your power respecting the geology, natural history, topography, and meteorology of the region above indicated.

5. As to the general character of the geological portion of your labours, it is unnecessary to add anything to the instructions communicated to you last year, and which, so far as this point is concerned, will serve for your guidance for the present season.

6. There are, however, two matters to which I am to request you to direct your particular attention, namely, the Salt region in the neighbourhood of Lake Manitobah adverted to in your report for last year, and the deposit of tertiary coal or lignite, reported to exist in the valley of Mouse River.

7. It is most important that you should ascertain, by actual examination, as far as possible, the existence, extent, and character of these deposits.

8. In ascending or descending the different rivers you may have occasion to explore, it is advisable that you should note with care their breadth, depth, rate of current, and the probable quantity of water discharged by them at different points, and at different seasons of the year; their facilities for navigation by boats or steamers, and whether they overflow their banks to any extent at any season of the year.

9. The general aspect of the whole region should be carefully described. The character of the timber and soil observed, and the general fitness of the latter for agricultural purposes ascertained as far as may be from observation and inquiry.

10. It is desirable that your meteorological observations should be made with the maximum and minimum thermometer, and with the wet and dry bulb. The temperature of the rivers, lakes, and springs should also be recorded, and the rain-fall observed.

Any reliable information you can obtain as to the quantity of snow precipitated during the winter would also be of interest.

11. Your topographical explorations should be made with reference to the construction of a map (as complete as possible) of the region explored, on a scale of two miles to one inch—and your operations should be conducted in view of a possible extension, at some future time, of the exploration, so as to embrace the entire valley of Lake Winnipeg and its feeders.

12. With a view to illustrate the natural history of the country, you will avail yourself of such opportunities as may present themselves to collect any objects that may be useful for that purpose.

13. Any geological or natural history specimens which you may have collected during your explorations, may be left by you at Red River, on your return, with the other property of the Government belonging to the expedition, to await the orders of the Government, with the other articles referred to in the tenth paragraph of my letter of the 14th instant.

14. I am to add that his Excellency, having every confidence in your judgment and discretion, does not wish to trammel you with more detailed instructions, and that you are left at liberty to make any other exploration, in addition to those particularly named therein, should you, upon information obtained in the locality, deem it desirable for the general purposes of the expedition.

15. It is hardly necessary to state that you will be held responsible for the conduct, diligence, and fidelity of the party under your charge.

16. With a view to distinguish your branch of the expedition for the present year, it will be convenient to designate it as the "Assiniboine and Saskatchewan Exploring Expedition;" by this title, therefore, you will describe it in your Reports.

I have, &amp;c.

(Signed) T. J. J. LORANGER, Secretary.

Henry Y. Hind, Esq., Toronto.



## REPORTS OF PROGRESS.

## No. I.—LAKE SUPERIOR TO RED RIVER.

SIR,

Red River Settlement, June 3, 1858.

I HAVE the honour to inform you of my arrival at the Red River Settlements yesterday afternoon, after a canoe voyage of twenty-three days from the west end of the Grand Portage, Lake Superior.

It affords me much pleasure to be able to state that no accident or difficulty of any description occurred during the voyage, and upon a careful review of our supplies, instruments, and personal baggage, the fracture of one small thermometer represents the only injury sustained.

The arrival of this expedition at Red River in advance of Sir George Simpson, has excited some surprise in the settlements. The well-known rapidity with which that distinguished traveller has for many years been accustomed to accomplish the voyage between Lake Superior and Red River, *via* the Kaministiquia, may render desirable a more detailed description of the old North-west Company's route we followed, than would otherwise appear to be necessary.

We have all enjoyed excellent health, and were providentially assisted by very favourable weather, which, though at times stormy and cold, did not retard our progress for many hours at a time. On our arrival at Moose Lake, May 12th (*vide* accompanying map), a glistening sheet of solid ice overspread its surface, and seemed to threaten a long delay; but by noon on the following day, under the influence of a hot sun and a gentle breeze, lanes of water opened, through which we succeeded in passing the canoes, and on the evening of the same day a high wind accompanied by rain completely broke up the ice in the higher lakes, and opened the communication.

On the Winnipeg we encountered violent thunder storms, with hail and heavy rain, succeeded 24 hours afterwards by a boisterous snow storm; but happily the direction of the wind was generally in our favour, and aided our progress.

We remained one day at Fort Frances, with a view to repair the canoes, rest the men, and celebrate Her Majesty's birthday.

The Iroquois from Caughnawaga worked admirably. They were easily controlled, and fully maintained the excellent name they have acquired for hard-working, patient voyageurs.

When we started from the east end of the Grand Portage the baggage of the expedition weighed considerably over 6,000 pounds, and the labour of carrying it, in addition to the canoes, over the Portages, was necessarily great, and occasioned severe sores on the shoulders of some of the men, which were submitted to with characteristic good nature. The storage of Mr. Dawson's supplies in Fort Frances seemed to be a great encouragement, and when relieved of this duty our progress was remarkably rapid.

We camped off the mouth of Red River seven days after leaving Fort Frances, and might easily have reached the Settlements on the first day of June, but in view of our rapid voyage from Rainy Lake I did not think it necessary to press the guide; we therefore waited for a few hours at Fort Alexander, and enjoyed the very generous hospitality of Mr. Sinclair, the gentleman in charge.

The exact time the expedition spent in canoes between Lake Superior and Red River, after deducting the delays at the forts before mentioned, was 21 days and six hours, as opposed to 27 days and six hours by the Kaministiquia route last year. The average daily progress was  $28\frac{1}{2}$  miles against 25 miles in 1857.

The Grand Portage, made to overcome the falls of Pigeon River, 120 feet high, has been often cited as the chief obstruction to the Pigeon River route. Its length is 8 miles 15 chains. The road is dry, and in comparison with some of the portages on the Kaministiquia route, in good condition. It is passable for an ox team, which is employed by the people in charge of the American trading post in forwarding their supplies.

I endeavoured to procure the ox cart and team to transfer the heavy baggage from the east to the west end of the portage, but although the cart was available the team was not, one ox having died during the winter, and the other was in such a miserable condition that he could scarcely draw the cart itself.

The passage of the Grand Portage consequently occupied five days instead of two, and in making a comparison between the two canoe routes to Lake Winnipeg these facts must be borne in mind. In 1857 the Red River expedition landed at Fort William on the 31st of July, and reached the Settlements on the 4th of September, having been 34 days on the road, or 40 from Toronto. This expedition reached Grand Portage on the 5th of May, and arrived at the Stone Fort 2nd June, a period of 28 days, or 34 from Toronto. The Grand Portage lying within the territory of the United States loses all interest as the terminus of a Canadian route. But that part of the water communication which forms the boundary line, and the country between Arrow Lake and Fort William, seems to acquire importance in proportion to the extension of our knowledge respecting its capabilities and resources.

The waters on the rivers and lakes on the east side of the height of land, the Lake Superior watershed, were high, while those on the west side, or the tributaries to Lake Winnipeg, unprecedentedly low. In many of the lakes recent water-marks, four and five feet above the present level, were frequently observed. This remarkable lowness of the water is attributed by the half-breeds and Indians to the very small quantity of snow which fell on the western slope during the last winter.

It is important to bear in mind that the voyage of this expedition to Red River was made under the great disadvantages inseparable from unusually low water, and whatever superiority the route

appears to possess over that of the Kaministiquia by Fort William, will be much more apparent in ordinary seasons, when the lake and river levels are from two to five feet above their present altitude. The following brief sketch of the route is not intended to anticipate any results which may be furnished by Mr. Dawson's proposed exploration during the ensuing summer and autumn; but as it was made under peculiar circumstances, and in the spring of the year, it will serve to supply a blank which would be felt if a hot summer with little rain-fall should reduce the water levels much below their ordinary height in the autumnal months; an event which will not be deemed improbable when their present condition is known.

From Lake Superior to the Lake of the Woods our course lay on the boundary line between British America and the United States, as laid down upon the authorized lithographed map furnished by the Crown Land Department.

The accompanying chart is based upon that survey, and the observations of Mr. Dickinson assisted by Mr. Fleming are marked in red ink.

Chart No. 2 shows the Penawa River, down which the expedition voyaged, with a view to ascertain if it possessed any advantages over the old route by the Winnipeg. As the information obtained is not likely to possess any practical value in its bearing on the subject of a boat communication, I would wish it to be regarded merely as one of the small additions to our geographical knowledge of this country which opportunities occasionally enable us to make, and which it is desirable to secure, so long as they do not interfere with the general objects of the expedition.

The part of the Pigeon River Route to which this notice refers, commences at Arrow Lake, a fine expanse of water in connexion with White Fish Lake, lying in a north-easterly direction, and within 30 miles of the Kaministiquia.

From Arrow Lake, a short portage brings us into Rose Lake on the course of the old North West Company's route, following the boundary line.

The portages between Rose Lake and the Height of Land are short and low, while the Height of Land Portage is not 500 yards long, and does not rise above 50 feet. The passage from the St. Lawrence water-shed to that of Lake Winnipeg is short, easy, and dry, incomparably superior to the Prairie portage, and the Great Savanne on the Kaministiquia route. An inspection of the map will show that in consequence of the very low state of the water this year, numerous small rapids were formed in the rivers connecting Gun Flint Lake with Lake Seiganagah. In ordinary seasons these rapids are passed without difficulty, but this year they involved the portage of a portion of the baggage and the letting of the canoes down them by rope.

From Lake Seiganagah\* an Indian route passes into Little Seiganagah Lake, which connects with Sturgeon Lake on the route passed last year. The Little Seiganagah is a favourite wintering place of numerous families of Indians; it abounds with fish, and near its shores the winter road to Fort William runs.

Between Knife Lake and Birch Lake there are two routes, one coinciding with the boundary line, the other passing in a north-westerly direction by the dotted line shown on the map, which we followed, making however two portages instead of one, but escaping some rapids.

From Nequaquon Lake one route passes into the Nameukan River, and another, turning south, follows the boundary line through Loon's Narrows and then north into Nameukan Lake. Our guide preferred going by Loon's Narrows, fearing that the always dangerous Nameukan Rapids would be almost impassable for heavily laden canoes, on account of the low stage of the water.

In Loon's Narrows we found a shallow river with a strong current and many boulders, and in making the north-westerly turn, instead of the broad channel shown on the map, a very tortuous, sluggish, and shallow stream, led us into the south arm of Sand Point Lake.

The banks of Loon's Narrows showed that in ordinary seasons plenty of water is found in the river to admit of loaded canoes or boats without difficulty, and the delineation of this part of the route on the accompanying map, must be regarded as representing the narrow valley occupied by the river during periods of high water.

Sand Point Lake is connected with the Nameukan Lake by a broad channel, and it is at this point that the route through Loon's Narrows coincides with the more northern route and follows the boundary line through Rainy Lake to Fort Frances.

My own impression of the Pigeon River route as compared with the one pursued last year is very favourable, but as you will be placed in possession of all particulars by the exploration of Mr. Dawson, I refrain from further notice of this valuable line of communication.

On my arrival at the Middle Settlement, where Mr. Dawson and his party reside, I found Mr. Russell in charge of the house and effects, Mr. Dawson with the other members of his party having started some days previously for the Saskatchewan, whence they are not expected to return until the end of June; I have therefore placed Mr. Russell in possession of the canoes and men intended for Mr. Dawson, and am now engaged in organizing a party to proceed immediately up the Assiniboine.

I beg to enclose Mr. Dickinson's remarks on the route, and maps marked,—

No. 1. Pigeon River route.

„ 2. The Penawa.

„ 3. A chart of the whole route, showing the camping places, with corresponding dates.

I have, &c.

The Hon. T. J. J. Loranger, M.P.P.  
Provincial Secretary.

(Signed) HENRY Y. HIND.

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\* Seiganagah or "Full of Islands."



## No. II.—MR. DICKINSON'S REPORT ON THE PIGEON RIVER ROUTE.

SIR,

Red River Settlement, June 8, 1858.

I BEG leave to submit the following description of the Pigeon River route, compiled from the notes and observations taken by myself and Mr. Fleming, according to your instructions.

The accompanying map is a copy of part of the map made by David Thompson for the Boundary Commissioners; the notes in red ink being those taken by us.

The heights and distances were only estimated approximately, it being thought not necessary to make use of instruments for the purpose, as a complete exploration of the route is to be made hereafter.

Our observations more particularly commenced at Arrow Lake, as the head of this lake is the terminus of the proposed road to Point des Meurons, near Fort William, and in the case of its being made, (and it is most desirable that it should be if possible,) the route between Grand Portage Bay and Arrow Lake would not be made use of. However, a short description of it may not be thought unnecessary.

Grand Portage Bay, where formerly was the chief dépôt of the North West Company, affords a sufficiently safe harbour for small vessels, being very shallow, however, for some distance out from the shore.

At the head of the bay commences the Grand Portage, which is eight miles thirteen chains in length; without any difficulty and with very little expense it might be made suitable for waggons, but at present it is only a rough foot-path. As it and Grand Portage Bay are altogether within the United States territory, it is perhaps needless to propose any improvements that might be made in them. This portage is unavoidable, as Pigeon River, for sixteen miles from its mouth, is quite unnavigable, from the numerous falls and rapids in it.

From the end of this portage there is one and a half miles of still water to Partridge Portage, which is 445 yards in length. The path is on the American side of the boundary line, as it is also at many other places along this route. In these cases paths should be sought for on British territory, and which could be obtained, as well as we could observe, without much difficulty.

Above Partridge Portage the river is deep and wide, with a moderate current for three and a half miles; but from this for one mile to the semi-décharge the river is shallow and the current very strong; so much so, that canoes have to be poled up.

At this semi-décharge the path is on the British side, and is short but rough. When the water is high, no semi-décharge is required; but at the time we passed, the water here and in all the rivers and lakes was peculiarly low, the high-water mark appearing to be four feet above the present level.

The distance to the next semi-décharge is two miles, in which length there are no obstructions.

The second semi-décharge is about 30 chains long; in going down stream the portage need not be made; the path is on the American side.

Between this and Fowl Portage, a distance of three and a half miles, the river is quite navigable.

Fowl Portage is 2,000 yards long, and is pretty level except at the west end, where it is very precipitous. The boundary line runs along the path, as it does also at some other portages, but the paths could be all easily made on British territory, due precautions having been taken that the boundary line be not obliterated.

We here enter on Fowl Lake, which is four and three quarter miles long; in the middle there is a narrow strait about 10 chains wide and 30 chains long, part of it being rather shallow; the other parts of the lake are one mile wide on an average.

At the end of it is Moose Portage, 721 yards long; the path, which is the boundary line, could be easily improved or removed to one side.

Moose Lake is four and a half miles long, with an average width of half a mile; it is very deep, and is never frozen over till late in the season, and the ice is not broken up till long after that in the other lakes.

Great Cherry Portage is the next; it is 844 yards long, leading to a small lake quarter of a mile long, at the end of which is Mud Portage, 265 yards long; and between it and the lesser Cherry Portage there is another small lake 15 chains long.

On these three portages the boundary line, as it appears from the map, runs on the paths, although the lakes are connected by creeks. The paths are tolerably good, but better could be easily made, and solely on British territory.

We then come to the beautiful Mountain Lake, which is seven and three quarter miles long and three quarters of a mile broad, deep, and navigable for boats of any size.

Watap Portage, 539 yards long, lies between it and Watap Lake; the path is the boundary line.

Watap Lake is a narrow strip of water  $5\frac{3}{4}$  miles long and about 12 chains wide, sufficiently deep throughout the entire length for any kind of craft.

The Great New Portage is 2,379 yards long; it is rather uneven, and is crossed by some small creeks; the boundary line is on it, but judging from the nature of the ground, a good path could be made on British land.

We now arrive at Rose Lake, which is separated from Arrow Lake by a narrow neck of land, across which a portage must be made.

Arrow Lake is  $16\frac{1}{2}$  miles long, and has an average width of one mile; but as we did not visit it, its character cannot be described.

Rose Lake is three miles long, and averages three quarters of a mile across; it is deep, and well sheltered on all sides.

At the end there is a portage which is not shown on the original map; it is only 20 yards long, and on the American side.

Mud Lake is two and a half miles long and a quarter mile wide, and from three to four feet deep, with a soft muddy bottom; the water having the peculiar property of retarding the canoe, similar to that of the Viscous Lake on the Kaministiquia route.

Between it and the next lake there is another portage which is not named or described on the original map; it is 380 yards in length, and is the boundary line, the present path being tolerably good and level.

South Lake is the last on the east side of the Height of Land; it is two and three quarter miles across to the Height of Land Portage; the lake is about three quarters of a mile wide, and not more than four feet deep along the canoe route, the bottom consisting of very soft mud.

The Height of Land Portage is 468 yards long, and is one of the best on the route; a good road might be made without the slightest difficulty, there being plenty of pine and other good materials for the purpose close by.

We enter a lake now which is the head of the Winnipeg water-shed; having no name it may be considered part of Gun Flint Lake, with which it is connected by a strait two and a half miles long, and varying from three to ten chains in width. The traverse across this lake is one and three quarter miles long. Near the middle of the strait there is a semi-décharge not noticed on the original map; it is but 20 yards long, with about four feet fall; when the water is high the rapid could be run by canoes even when loaded.

Gun Flint Lake, from the end of the narrow strait to Little Rock Portage, is seven miles long, and has an average width of one mile; it is a fine open sheet of water of considerable depth. Before arriving at Little Rock Portage there is a rapid of two feet fall, down which the canoes were lowered by ropes; the rapid is caused by boulders of various sizes in the bed of the stream, but which might doubtless be removed.

Little Rock Portage is only 33 yards long; it is, as its name implies, over a rock, which is very steep on the west side.

From this to Mill Fall portage is a mile; the river is about six chains wide; at the end there is a rapid with a fall of three feet, the channel being filled up very much with boulders, so much so, that the canoes were let down with great difficulty.

Mill Fall Portage, of 110 yards in length, is over a very rugged rock on the American side.

The next Portage is a quarter of a mile further on; it is 509 yards long, over an island; the path is very good and level except at the ends, where it is rather steep and the landings are bad, but could be easily improved, as indeed the landings at all the portages might be and without any considerable cost, as the materials for doing so can be obtained without difficulty.

This river or chain of lakelets is twelve miles long from Gun Flint Lake to Lake Seiganagah; for four miles below the last-mentioned portage it is full of large boulders, which make the navigation of it difficult; there are in this length six rapids, varying from five feet to one foot fall, at four of which the canoes had to be carefully let down by ropes.

From thence to the semi-décharge of 100 yards in length and five feet fall, which is one mile from the end, the navigation is good. At the mouth of this river there is a portage which is not shown on the original map, neither are any of the rapids between this and the last portage.

This portage is 30 yards long, over a rocky point on the American side.

We now enter Lake Seiganagah, the route through which follows the boundary line or nearly so, and is nine miles in length. The greatest length of this lake is 12 miles, and the greatest width six miles. It is full of islands, from which it derives its name, affording good shelter to canoes, at the same time not impeding the navigation for large boats.

After passing through a short channel 12 chains wide we enter Swamp Lake, which is two and a quarter miles long, and averaging 30 chains wide; in it there is a small portage 20 yards long; the channel being only about three feet wide and very shallow. The water in the western portion is higher by about one foot than that in the other; the waters of Lake Seiganagah must therefore find an exit elsewhere.

Swamp Portage is 423 yards long, on which is the boundary line; the path is very good, except at the east end, where it is swampy, the landing there being exceedingly bad; however, here as elsewhere, there is no reason why a good one might not be made very easily.

Cypress Lake, the next we enter on, is a long narrow lake five and a quarter miles long by a quarter of a mile wide, and of sufficient depth. There is a portage at the end 47 yards in length; with little labour and expense this portage might be done away with, or at least made a semi-décharge; the present path, however, is very good, and is on the British side of the boundary line.

Knife Lake, the next on the route, is of a very irregular shape; the course follows the boundary line for eight miles, when it then diverges to the north. When the water is high the course may continue along the boundary line the whole way as it is shorter than the other; but when the water is low the narrow channel is full of rapids, and becomes unfit for the navigation of large canoes, and then the northern course on British territory, as shown by the red-dotted line on the map, which we took, is much preferable.

The first portage, three quarters of a mile from the boundary line, is rather bad; it is 700 yards long, and is very rough and hilly; but a better one might no doubt be made.

After passing through a lakelet three quarters of a mile long by a quarter of a mile wide, we come to the next portage, which is a short one, 60 yards long.

The upper portion of Birch Lake is then entered, and the course is continued in a south-westerly direction for four and a quarter miles till it reaches the boundary line, along which it afterwards goes.



Half a mile further on the Carp Portage is reached; it is 275 yards in length, the path is very good indeed, but forms the boundary line, as it appears from the map, although there is a channel close by which would have been the more natural one.

The course through the other portion of Birch Lake is four miles long, along which the water is deep enough for any kind of boats.

At the entrance to Basswood Lake there is a portage 196 yards long on the British side of the boundary line; the path requires but very little labour to make it quite good.

Basswood Lake, perfectly navigable for small steamers, is a large lake of most irregular form, and containing many islands. The usual course through it lies along the boundary line, and is  $17\frac{1}{2}$  miles long. At the end there are two rapids of considerable fall, a quarter of a mile asunder, which are avoided by portages; the first one, of 190 yards in length on the American side, is pretty good; as far as could be seen there appears no reason why the portage might not be made on the opposite side. The next portage, the Fir, is 350 yards long; the path is the boundary line; it is over very rocky ground, and rises considerably in the middle. After passing this portage there are in the first mile two rapids not shown on the original map; one of three feet fall, the other of two feet, but which are easily run.

The channel is not more than about 10 chains wide, and continues of this width for seven and a half miles.

Two miles below the last rapid is a portage 166 yards long over a high rocky point on the American side; there was no apparent objection why a portage path might not be constructed on the other side in British territory.

Three miles further down the channel Crooked Lake, which fully deserves its name, is fairly entered on. The course follows the boundary line through it, and by its windings is 14 miles in length, though the absolute length of the lake is but 10. The navigation is somewhat intricate, at the same time quite sufficiently good for even boats of large dimensions.

Curtain Fall Portage is 183 yards long; the path is rather bad, being carried over a hill, and is very rough indeed; it is on the American side. Just below it there is a rapid of about three feet fall, which is run by canoes without difficulty. Iron Lake, the next in succession, is a small lake full of islands; the usual canoe route through it, which is also the boundary line, being four and a half miles long; the water was of good depth the entire way; at the east end, where it becomes like a river, there is a strong current, but which canoes or boats when ascending can easily overcome.

Bottle Portage, which is 448 yards long, might be easily made one of the best on the route; the ground is very level except at the ends, which are rather steep, but by a little management the path could be made with the proper inclination.

There is a long stretch 22 miles in length now of navigable water through Nequawquon Lake, the course following generally the boundary line, except about the centre of the lake, where it keeps to the south of the large island.

At the south-west end there is a portage 217 yards long on the American side. Very little is required to make a good path on British territory.

After passing through a small lake four miles long by the course, a narrow channel called Loon's Narrows is entered. One and three-quarter miles from the commencement there is a portage of 263 yards on the American side. It appeared as if a shorter one, and on as level ground, could be made on the British side.

Half a mile from this there is another portage 67 yards long, also on the American territory, which might be transferred, as the other, to the north of the boundary line. Below these portages the current is very strong, and at the bend the river is very shallow, and the bed covered with small boulders, which, however, could be easily removed and the channel deepened.

As the water was very low at the time we passed along, it was confined to a channel from two to four chains in width for a distance of six miles, meandering through a valley which in times of high water is covered as shown on the map.

Sand Point Lake may be said to commence here. It is  $9\frac{1}{2}$  miles long, and down the centre is the course and boundary line; it is free from any kind of obstruction to good navigation. It is connected with Nameukan Lake by a strait 16 chains wide.

From this through Nameukan Lake there are two courses to Rainy Lake, the one following the boundary line by the Kettle Falls Portage, of 127 yards in length, the other by the eastern channel, by which the Expedition went last year, and which we took this; on it there are two very short portages, and the course is much shorter than the former.

I have refrained from offering the necessary suggestions for the improvement of this route, as I understand Mr. Dawson is to make a complete exploration and survey of it this year, and who will therefore be better able to form an opinion as to its capabilities and required improvements.

However, from even the cursory examination I was enabled to make, it appears greatly superior to the Kaministiquia route.

It is 63 miles shorter than the other. There are fewer portages, all much shorter with the exception of the Grand Portage; and none of them are nearly so bad as the Savanne, Prairie, or Great Dog Portages. There are very much fewer rapids, and which are all more easily run. Excepting Pigeon River, it consists of a chain of lakes the whole way connected by short channels, in few of which only the current is at all strong.

I think that with a comparatively small outlay the route could be made navigable for large row boats, and that on many parts of it small tug-steamers could be advantageously employed.

I remain, &c.

Henry Y. Hind, Esq.  
&c. &c.

(Signed) JAMES A. DICKINSON.

No. III.—FORT GARRY TO FORT ELlice, *viâ* THE LITTLE SOURIS.

SIR,

Fort Ellice, Rupert's Land, July 9, 1859.

IN the letter I had the honour to address to you from Red River on the 3rd June last, I stated that, after making the necessary preparation, I should immediately commence the exploration of the valley of the Assiniboine River. The distrust, and even dread, with which the Sioux Indians are regarded by the Red River hunters, made it necessary to secure the services of a strong party for the exploration of the Little Souris or Mouse River, where Tertiary coal was reported to exist. In consequence, however, of the failure of last year's autumn buffalo hunt, and the ravages of the grasshoppers at Prairie Portage, and elsewhere in the settlements, most of the able-bodied men fitted for the exigencies of a journey into the Indian country had left the settlements a few days before my arrival, either for the Buffalo Plains or for St. Paul; and it was with some difficulty that I could procure eight men and the necessary provisions for a three months' journey; but by the 14th of June the expedition was *en route* for the interior.

After arriving at St. James's Church, on the Assiniboine, I proceeded with Mr. Dickinson to ascertain the position of the Big Ridge bounding the valley of the Assiniboine, and followed its windings for a distance of 70 or 80 miles, until it is cut by Portage River near Lake Manitobah, opposite Prairie Portage. Mr. Fleming proceeded with the carts and canoes by the hunters' road to Prairie Portage, making on his way a section of the Assiniboine River, and ascertaining by numerous trials its rate of current, volume of water, &c.

The Assiniboine valley, south of the Big Ridge, on the north side of the river, comprising an area exceeding half a million acres, was described in my report of last year as possessing a soil of remarkable excellence. The results of a more particular examination during the present season fully bear out the favourable opinion previously formed.

After reaching Prairie Portage we proceeded on the north bank of the Assiniboine as far as the mouth of the Little Souris River. During this part of our journey we occasionally stopped for half a day to make the necessary astronomical observations, to measure the valley of the river, and make sections of its banks.

The impressions with which I returned to Toronto last year regarding the extent of forest on the banks of this river, confirmed as they appeared to be by all descriptive accounts I received from residents at Red River, led me to suppose that the Assiniboine flowed for about 80 miles from its mouth through a vast level prairie timbered only at the points or bends of its course. I was much astonished to find that this is true only as regards the *north* bank of the river, the south bank being occupied by forest, which commences some 30 miles from Fort Garry, and covers the country westward for a distance exceeding 60 miles, with a depth varying from 3 to 25 miles. We frequently saw this vast forest from hills on the north side of the river covering a tract of country which could not be less than 12 or 15 miles in breadth; and with a good telescope the prairie between it and an extension of Pembina Mountain or Ridge was traced. I have ascertained that the forest contains some fine timber, and is well known to Indians who hunt there during the winter, but the trails of the buffalo hunters avoid it, and keep to the open prairies; hence its existence even is unknown to many of the residents at Red River, and the buffalo hunters, always shunning it, have but little knowledge of its timber resources.

It is my intention on returning to the settlements to penetrate through this forest in two or three directions, with a view to ascertain its character, as far as time will allow.

It is needless to dwell upon the great importance of so abundant and unexpected a supply of serviceable timber, within one or two days' journey of a very extensive and fertile arable country, and on the banks of a navigable river, within a day's march of Fort Garry.

The country on the north side of the Assiniboine between Prairie Portage and the mouth of the Little Souris, for a distance of several miles back from the river, is poor and scantily timbered. The prairies on the Little Souris are also light, and the deep valley of that river contains but little timber. At Snake Creek numerous specimens of drift lignite were found, and after a few hours' exploration, favourable indications led me to have a section of the river's bank exposed, by making a cutting at right angles to it, with a view to show the stratification. Here, no less than four distinct beaches of a former lake were brought to light, each beach bearing numerous rounded and polished boulders and pebbles of drift lignite, varying from two to fifteen inches in diameter, but no trace of the lignite in place was seen on the Little Souris north of the 49th parallel. The beaches just referred to were several times noticed further up the river; they are accompanied by a bed of ferruginous sand, above which several extensive deposits of bog iron ore and shell marl were found.

Having determined, if time will permit, to return to the settlements *viâ* the Assiniboine in canoe, I forbear for the present from referring to the geology of its rock exposures, further than to state, that what I have already seen leads me to think it will repay an attentive and careful exploration.

Having reached the 49th parallel, the expedition proceeded up the banks of Red Deer's Head River for about 15 miles, and then crossed over a treeless prairie, 60 miles broad, towards Fort Ellice.

The hill sides in the valley of the Little Souris River were scored with tracks of buffalo, and everywhere we saw the bois de vache of last year, but it was not until arriving at the Two Creeks in the Assiniboine valley, that we killed a buffalo bull. The buffalo this year are far south, and the hunters have suffered much distress on that account. Yesterday we saw three bulls at a considerable distance from us; they are considered to be the pioneers of numerous herds, which are anxiously looked for by the people of the Fort, who are almost altogether destitute of provisions.

Everywhere we find grasshoppers. On the Assiniboine, the brood of this spring is yet unable to fly, but when traversing the treeless prairie between Red Deer's Head River and the Assiniboine, innumerable hosts of grasshoppers were flying northward in the direction of the wind. At times



they would cast a shadow over the prairie, and for several hours one day the sky from the horizon to an altitude of thirty degrees acquired an indescribably brilliant ash-white tint, and seemed faintly luminous as the semi-transparent wings of countless millions of grasshoppers towards the north and north-east reflected the light of the sun.

On Monday, July 12th, I propose to start for the Saskatchewan by the Qu'Appelle or Calling River, returning to the settlements by the end of August.

The weather on the whole has been very favourable, but in the early part of our journey thunder storms, for many days in succession, caused three or four hours delay during their continuance. We have had seventeen thunder-storms in 23 days; nearly all were of a violent character, with hail, heavy rain, and boisterous winds.

We did not see any Indians before our arrival at Fort Ellice. On the Red Deer's Head River an attempt was made in the night to stampede the horses, which was fortunately frustrated by the distant neighing of a horse reaching our ears and giving us time to take precautionary measures, but the tracks of hostile Indians close to our camp were found in the morning.

This letter is written in the expectation that some hunters may soon be returning, *viâ* Fort Ellice, to Red River for supplies, who will be instructed by Mr. McKae, the gentleman in charge at Fort Ellice, to place it in the post-office at Fort Garry.

I have, &c.  
(Signed) HENRY Y. HIND.

The Hon. T. J. J. Loranger, M.P.P.,  
Provincial Secretary, Toronto, C.W.

NO. IV.—FORT ELLICE TO THE SOUTH BRANCH OF THE SASKATCHEWAN, THENCE TO FORT À LA CORNE AND RED RIVER.

SIR,

Red River, September 10, 1858.

ON the 18th of July, or nine days after the date of the report which I had the honour to address to you from Fort Ellice, we arrived at the Qu'Appelle Mission, recently established on one of the lakes which distinguish that part of the Qu'Appelle or Calling River valley.

From the 19th of June to the 18th of July, it was found necessary or advantageous to preserve the party composing this expedition united, but having arrived in the Cree country, to the north of the prairies generally occupied by bands of Sioux and Assinniboiné Indians, I found it desirable to form three divisions, with a view to traverse and examine the country hereafter described.

The Mission of the Qu'Appelle Lakes is situated about half-way between Fort Ellice and the south branch of the Saskatchewan. From this point Mr. Dickinson, with two men, proceeded in a small canoe down the Qu'Appelle River, to its junction with the Assinniboiné, thence on horseback to Fort Pelly, where he met Mr. Hime with four men, who, after having examined Long Lake, some 50 miles west of the Qu'Appelle Mission, travelled across the country to Fort Pelly, with Mr. Dickinson's carts and supplies.

The third division of the party, comprising myself, Mr. Fleming, and two men, sailed or tracked up the Qu'Appelle Lakes and River to the Grand Forks, a distance of 50 miles, where three men, with our supplies, met us at the appointed time; we then followed the valley of the Qu'Appelle River to its source, and passed on through a continuation of the same valley to the south branch of the Saskatchewan by the "River that turns," flowing westerly.

We struck the South Branch at the Elbow, and launched our three-fathom canoe on that magnificent river, down which Mr. Fleming and I drifted for 250 miles, until we came to the junction of the north and south branches of the Saskatchewan.

The supplies, with four men and a Cree guide, were sent across the country to Fort à la Corne, opposite the Nepoween Mission, about 18 miles below the Forks. Two days were occupied in examining part of the Coal Falls on the North Branch, above the Forks; after which we joined the carts on the 9th of August at Fort à la Corne. Here I made another division, sending Mr. Fleming with two men in a canoe to Cumberland, thence to proceed down the Saskatchewan, and by the west coast of Lake Winnipeg to Red River. Taking the carts and four men, I followed the course of Long Creek against the current, running parallel to the South Branch for a distance of 50 miles; then, turning in a south-easterly direction, travelled across the country to the Touchwood Hills, and thence to Fort Ellice, where, after an absence of 43 days, I met Mr. Dickinson and his party within three miles of our appointed rendezvous.

After Mr. Dickinson's arrival at Fort Pelly, he proceeded with Mr. Hime to examine the flanks of the Dauphin Mountain, from Swan River to Rapid River or the Little Saskatchewan, a tract of country comprehending the greater portion of the north eastern water-shed of the Assinniboiné. After our union at Fort Ellice we proceeded to Red River *viâ* the White Mud River, which flows into Lake Manitobah, and arrived at the settlements on the 4th of September, nearly three months from the date of our departure.

Mr. Fleming has not yet returned, and I am now preparing to go in a canoe with a supply of provisions to meet him, in case the southern wind should prevent him from advancing.

The importance of ascertaining the true character of the Qu'Appelle Valley became more evident as we proceeded westward and met with Indians and a few half-breeds, whose accounts and descriptions seemed to agree in the general statement that a great valley, a mile or a mile and a half broad, and from 100 to 300 feet deep, did exist, running in a course nearly due east and west, between the south branch of the Saskatchewan and the Assinniboiné.

The Qu'Appelle River rises within 12 miles of the Saskatchewan, as shown on the accompanying map. Its course is first northerly for several miles, through a narrow gully which widens into a deep valley before it reaches the Qu'Appelle Valley proper. About four miles west of the Qu'Appelle, and running in a direction nearly parallel to it, a river called by the Crees of the Sandy Hills "The River that turns," flows into the same great valley, and pursues for 12 miles a westerly course, when it falls into the South Branch at the Elbow; this is evidently the Heart River of Thompson's Map. By the united action of these rivers, and other agents to be described in full in my general Report, a great valley stretching from the Saskatchewan to the Assiniboine has been excavated. This valley has a greatest breadth of about one and a half, and a least breadth of about half a mile at the Sandy Hills; its greatest depth below the Prairie is between 300 and 400 feet, its least depth 130 feet. Between the Qu'Appelle River and the "River that turns," there is a space of about four miles occupied by ponds in the valley, which unite into a shallow lake in the spring and send their waters at the same time to the Assiniboine and the Saskatchewan. With a view to determine the height of the Qu'Appelle, where it enters the great valley, above the South Branch, we levelled from one river to the other, and found a difference, in 12 miles, of 86 feet. The Qu'Appelle is here about 10 feet broad and one and a half deep. The "River that turns," nearly of the same dimensions, and the south branch of the Saskatchewan about half a mile broad with a channel 10 feet deep. These altitudes and distances are given in round numbers, but they will be accurately expressed in accordance with repeated measurements in my general Report. In order that the waters of the Saskatchewan might flow down the Qu'Appelle Valley into the Assiniboine, a rise of 86 feet in 12 miles would have to be overcome, and I am persuaded from indubitable evidence that this has not occurred during modern times. During very wet seasons, in the early spring months, the whole valley of the Qu'Appelle from within 14 miles of the south branch of the Saskatchewan, is converted into a narrow, shallow lake, all the way to the Assiniboine, a distance exceeding 250 miles, with a current of perhaps one mile per hour; and from the "River that turns," to the South Branch, a distance of 12 miles, an impetuous torrent occupies the valley, leaving along its course many indications of its violence and force. In the spring of 1852, ever remarkable in this country for its extreme humidity, a canoe might have passed from the Saskatchewan to the Assiniboine by rising 80 feet in 12 miles; then descending about 200 feet, in a distance of perhaps 250 miles to the Assiniboine. The Qu'Appelle Lakes east of the mission are briefly described in the accompanying Report by Mr. Dickinson. The lakes west of the mission are four in number; the depth of three of them is about 50 feet, the last or Salt Lake near the Height of Land is very shallow, and does not contain in the summer months drinkable water.

From the first Fort, *vide* accompanying map, another great valley similar in all respects to that of the Qu'Appelle River, stretches in a north-westerly direction, and for 40 or 50 miles is occupied by water, forming a long, narrow lake, varying from three-quarters of a mile to two miles in breadth; this is called by the Crees, the Long Lake, also the Last Mountain Lake; it is connected with the Saskatchewan by a broad excavated channel, similar to that occupied by the "River that turns." Long Lake abounds in fish, but there is very little timber to be found on its steep cliff like banks.

The south branch of the Saskatchewan is a noble river, varying in width from half a mile to 300 yards, for a distance of 100 miles from the Elbow; it then gradually contracts its channel and changes its character from a river full of sand-bars and mud-flats, pursuing a comparatively straight course to a rapid and uniform torrent of water, sweeping down the narrow but deep valley it has excavated, from one bank to the other in magnificent curves until it joins the north branch.

The country on the south side of the South Branch as far as the Moose Woods is a light prairie; there is very little timber to be seen, and all of small dimensions; the same may be said of the Qu'Appelle valley; open prairie on either side, or prairies covered with clumps of aspen. In the numerous gullies which give variety to the steep banks of both the Qu'Appelle and Saskatchewan valleys small timber is invariably found. The main Saskatchewan is a river of very imposing magnitude. Like the South Branch it occupies a narrow, deep valley, varying in width from one and a half to three miles, extending a few miles below the Nepoween Mission. It flows in grand curves from side to side, and its general level is about 300 feet below the country through which it has excavated its channel, afterwards it enters the low region.

We have made many sections of the South Branch, Main Saskatchewan and Qu'Appelle, &c., and numerous trigonometrical measurements of their valleys, and noticed continually the rate of currents, volume of water, character of banks, &c. &c., all of which will be embodied in the general Report. In the large expanse of country over which our explorations have extended, the area of land of the first quality, namely, of black vegetable mould reposing on gravel or clay, is far more extensive and important than we anticipated. It is distributed as follows:—

1. On the south branch of the Saskatchewan from the Moose Woods to the Nepowewin Mission, and according to the description of half-breeds familiar with the country, a soil of equal excellence extends to the valley of Swan River. The immediate banks of the Saskatchewan are of a poor, sandy, or gravelly soil, but on the prairie plateau three miles from the river, the rich soil commences, and in the part over which I passed, has a breadth of sixty miles.
2. The Touchwood Hill range, having an area exceeding 1,000,000 acres; for beauty of scenery, richness of soil, and adaptation for settlement, this is by far the most attractive area west of the Assiniboine.
3. The soil is of first quality in the valley of Swan River, and over the whole of the east water-shed of the Assiniboine, with the exception of the country near its banks.
4. The valley of White Mud River is generally fertile and inviting. Until the maps which will accompany the general Report are prepared, it is impossible to give an approximate calculation of the area of available arable land, but I may here say, that the ratio which land of excellent quality bears to land of indifferent or worthless quality in the regions just referred to is largely in favour of the former.



The Riding Mountain, as described in Mr. Dickinson's report, is timbered with large aspen. On the level country drained by the Saskatchewan, from the Moose Woods to the Neepoween Mission, the timber is small, but on the Touchwood Hill range there are some fine aspen forests.

I have succeeded in finding numerous rock exposures on the Qu'Appelle and south branch of the Saskatchewan, which will enable me to produce a geological map of a large portion of the country briefly described.

I start immediately to meet Mr. Fleming, and then propose to visit the east flank of Dauphin or Riding Mountain, and the Salt Springs on Dauphin River and Lake.

Mr. Dickinson will examine the country south of the Assinniboine with a view to ascertain the extent and character of the forest to which allusion was made in my report from Fort Ellice.

Hon. T. J. J. Loranger, M.P.P.  
Provincial Secretary, Toronto.

I have, &c.  
(Signed) H. Y. HIND.

No. V.—MR. DICKINSON'S REPORT on the QU'APPELLE VALLEY East of the MISSION.—FORT PELLY to the RAPID RIVER.

SIR,

Red River, September 6, 1858.

THE following Report contains a short description of those parts of the country which I have examined according to your letter of instructions, dated Fort Ellice, July 12th, 1858, together with a brief notice of some of my operations from July 20th, the day we parted at the Church of England Mission, Qu'Appelle Lake, till we met at Fort Ellice on August 23d. After our separation at the head of the river issuing from the Lake at the Mission, I took a section of the bed of the river and ascertained the rate of the current, and then proceeded down it to the next lake, which is the second of those called the Fishing Lakes, as fish are much more abundant in these than in those lakes further down the Qu'Appelle Valley.

The character of this portion of the river which connects these two lakes together, being exactly similar to that of all other parts of it, one general description will suffice, together with special descriptions of a few places where there are differences.

The river varies in width from one to one and a half chains, and in depth from two to five feet; the average rate of current taken from several trials being one and a quarter miles per hour. The river is most wonderfully tortuous throughout its entire length; for ever being deflected from one side of the valley to the other, so that it is much more than double the length of the valley; several, indeed most of the bends, are so very sharp that it was with much difficulty the small canoe, only two and a half fathoms long, could be steered safely round them and prevented from running in on the banks, the current at some of them being two miles per hour.

The second of the "Fishing Lakes," the one which I first came to, is about three and a half miles long and three quarters of a mile broad; it is more than seven fathoms deep everywhere I tried it, even within a few yards of the shore. The river flowing from this to the next lake is but half a mile long. The name of the lake in Cree is, "Pa-ki-tah-wi-win," in English the "Fishing Lake," called so *par excellence* from the great quantities of fish it contains at some periods of the year. It is about six miles long and three quarters of a mile wide, which is about the average width of the valley. I tried the depth of it in several places along the course I took, which was down the middle of it, and found it to vary from five to eleven fathoms.

Having made a section of the river and ascertained the rate of current, I proceeded down it to the next lake called the "Crooked Lake," or in Cree "Ka-wa-wa-ka-mac," where I arrived in the forenoon of the 23d. The general character of this portion of the river is the same as I have given before, but at some places here and there it varies from it. In two places, each about a quarter of a mile long, the river is full of sand and gravel bars, the depth of water over them being only about nine inches. In another place the current exceeds three miles an hour, to ascend which would indeed be a tedious and difficult task. Half way between these two lakes I took measurements for calculating trigonometrically the width and depth of the valley. The results of these and other measurements and observations will be shown on the maps. In round numbers I may say, however, that the valley appears to be from 250 to 350 feet deep, and from half a mile to one in width. The average height of the immediate banks of the river over the present level of water was about six feet, the high water mark being eight feet over the same level. The greater portion of the valley is therefore always liable to be flooded, which I believe is the case every spring.

The middle of the valley between the bends of the river is mostly covered with willows, with here and there a few young sugar maple. The south slope of the valley is thickly covered throughout with small aspens, the balsam poplar growing well also in some places, while the north slope is quite bare of trees, which I found to be caused by the fires which almost every year sweep along this side of the valley, for I saw in several places the remains of burnt trees, and in the hollows and deep recesses of the slope the young oak shoots springing up from the half burnt roots.

On this side for the whole way there is a track, along which the Indians travel constantly during the year, which accounts for the numerous fires.

"Crooked Lake," the most beautiful of the Qu'Appelle lakes which I have seen, is upwards of eight miles in length, and from half a mile to one mile in breadth. There are several long points running out from the shore, on which grow oak, elm, ash, and poplar; none of them very large, however, but which would be useful for various purposes. There was no place where I sounded less than four fathoms deep. The water in this lake, as well as in the others, was at this time rendered

very disagreeable by the great quantity of *confervæ*, covering nearly the whole surface and to some depth, now decaying and rotting under the hot sun.

At the commencement of the next portion of the river flowing out of this lake there is a very rapid current, or rather a series of small rapids, for two miles and a half, and the river is, if possible, more winding than ever, and is at some places only 40 feet wide. The rest of it, cross sections of which I took at different points, as far as the next lake, resemble in its character the general description of the river. In the evening of July 24th I reached the lake called "Round Lake," the Indian name of which is "Ka-wah-wi-ya-ka-mac;" it is the last of the chain of lakes in descending the river.

It is four and a half miles in length, and is about one mile broad in the widest part. Owing to a long point of land running out from the south side of the valley, about one mile and a half from the head of the lake, part of it looks nearly round, from which it derives its name. It is, in all places where I sounded it, more than four fathoms deep, except at the mouth of the river and one hundred yards from it, where it was only two feet. The south slope of the valley is here as densely covered as before with young poplar, and with patches of young oak, elm, and ash, and the north slope is burnt as usual by the devastating fires. Two miles down the river from the lake, the bed is thickly strewn with boulders for about one hundred yards, where the current is very strong, making the navigation, even for a small canoe, rather intricate. The Indians call this place the "Stony Barrier," or, as it is in the Cree language, "A-si-ne-pi-che-pee-ya-kan."

Between this point of the Qu'Appelle River and its confluence with the Assiniboine, there were two places, one on each side of the valley, where the slopes were exposed; on examining them, I found shale in position, but very much decomposed. These places will be marked on the map hereafter. After a long search I found but one fossil shell, which I enclose to you, together with specimens of the rock. At many places I ascended the sides of the valley to see the country on both sides, and found it to be generally level prairie, of light sandy loam, with scattered clumps of willows and small poplars. Several small creeks, the principal of which are the Big and Little-cut-arms and the Scissors creek, flowing in from both sides, gradually increase the depth of the river, but not its width, six feet being now the average depth. The river, twisting and turning about in every direction, is continually cutting out new channels, forming sometimes a most intricate maze. As it approaches the Assiniboine, the Qu'Appelle Valley gets wider, and the slopes flatter, on which grow more and better timber, on the south side particularly; it consists of elm, ash, aspen, balsam, poplar, and maple, all mingled together, with an underwood of willows, dogwood, hazel, and roses. I arrived at the mouth of the river (a section of which I took) at 6 A.M., July 27th. Having left one man in charge of the baggage at the landing place, I hastened to Fort Ellice with the other, and sent him back with a cart which Mr. McKay kindly lent me to fetch it. The next day I was delayed several hours trying to procure a guide who knew the track on the west side of the river from this to Fort Pelly, and in consequence was not able to start till late in the afternoon. Mr. McKay kindly sent men to assist me in crossing the Qu'Appelle River, which was accomplished without any loss, and with but one accident, my horse receiving rather a bad cut when getting up the bank of the river, which was very soft, and covered with broken trees. We camped for the night on the north side of the valley; this side is composed of fine loose sand, intermixed with small boulders. From this to the Wolverine Creek, a distance of about 15 miles, the land is light sandy clay, in many places pure sand, covered principally with a low growing creeper, bearing berries like the juniper; the grass is very short and scanty, and the aspens, which are the only trees, are very small. Further on, the country improves very much as to its soil and vegetation, but it abounds with marshes, swamps, and ponds of various sizes, round which grow willow and young aspens, and this is for about 60 miles.

From thence to Fort Pelly the country is densely covered with aspens from five to 15 feet high, and willows of different kinds; there are open spaces to be seen now and then, where the wonderful luxuriance of the vegetation is beyond description. Lakes and ponds are very numerous throughout, encircled with large aspens and balsam poplars.

There are several rivers and creeks flowing into the Assiniboine, into which many of these marshes and swamps might be easily drained. White Mud River, which is the largest of them, is 70 feet wide, four feet deep, and very rapid, so rapid that it was with much difficulty we forded it.

I arrived at Fort Pelly on August 1st, where I found Mr. Hime and the others of my party. Next day I took observations for latitude and variation of compass, and in the afternoon, accompanied by Mr. Macdonald, who was in temporary charge of the fort, inspected the farm which the Company have here. The crops had been beautiful at the beginning of the season, but have been all, excepting the potatoes, completely devoured by the grasshoppers. The next day I rode to Swan River, by the valley of Snake Creek, with Mr. Macdonald and Mr. Hime. This beautiful valley contains all the requirements necessary for a settlement. The timber is very plentiful and of a good size; there is no pine, however, but the balsam spruce, which the people here mistook for it, is abundant, and averages two feet in diameter at five feet from the ground. There is some tamarack also, tall and straight, from 1 ft. 6 in. to 2 feet in diameter. The balsam and aspen poplar grow to a large size, and are everywhere to be had. The land, for the most part, is good sandy loam, and is traversed by numerous creeks.

Snake Creek is about 13 feet wide, and 1 ft. 6 in. deep; it yields plenty of fish, as also do one or two small creeks running into it. Swan River is from 90 to 100 feet wide and 14 feet deep; its current is very rapid, being about three miles an hour; it is very winding where the Snake Creek joins it, and I believe is so all along. The valley, which is from 80 to 100 feet below the general level of the country, is most rich and fertile, but almost altogether filled up with trees, such as poplar, balsam, spruce, and willows. The next day, August 4th, we left Fort Pelly, and proceeded along the base of the Duck Mountain, a part of the chain of mountains called the Dauphin; properly speaking, it is a high ridge between the Assiniboine River and Lake Manitobah. The ground rises gradually



from the river towards the summit of the so-called mountain, which appeared about three miles distant, and is thickly covered with poplar, so thick that the forest is nearly impenetrable.

The land for a few miles is rather light, but it then becomes much better, and for the whole way to the Little Saskatchewan or Rapid river (the eastern limit, according to your letter of instructions, to this line of exploration), the land may be said to be good sandy loam.

In a short report, as this must necessarily be, I cannot give descriptions of the different portions into which this side of the valley of the Assinniboine may be divided, but taking it as a whole, I may say, that in fertility of soil, timber, and water power, it surpasses all other parts of the country I have seen. I made several attempts to reach the summit of the mountain, particularly that part called the Riding Mountain, but was baffled each time by the extraordinary thickness of the wood of young poplars, among which there were lying the half-burnt remains of older trees concealed by the long grass, vetches, convolvuli, and innumerable other plants.

I cannot pass by, however, the valley of the Little Saskatchewan without making a special note of it. We reached it on 11th August, and the next day I was able, fortunately, to take observations for latitude, &c., for early in the afternoon the sky became cloudy and a thunder storm came on; next morning, accompanied by Mr. Hime, who has been giving me great assistance in making the survey, I rode on horseback up the valley; we could only go, however, 15 miles, as the trees and underwood became then so marvellously dense as to make it quite impassable for horses.

The valley is about 80 feet below the general level of the country; the bottom of it is from half a mile to one mile wide, through which the river winds its way, flowing rapidly and uniformly; it is about forty feet wide, and at this time was five feet deep. There is no appearance of the valley ever being flooded, the willows which grow along its banks being green and luxuriant down to the ground.

There are large open flats occurring frequently on both sides of the river, where the richness of the grass and beauty of the various flowers prove the great fertility of the soil, places marked out by nature to be cultivated and inhabited by man; there is abundance of good sized poplar and balsam spruce, sufficiently large for building and farming purposes.

I followed the course of the valley down to its junction with the valley of the Assinniboine, and for the greater part of the way it is rich and fertile, as is also the land adjoining. Within a few miles of the Assinniboine the country changes considerably, the soil is much lighter, and the trees fewer and smaller; and at the junction of the vallies the country is very poor indeed, being sandy and gravelly clay, abounding with granite boulders of various sizes.

I returned then by the same way to the track called "The Lower Road" from Red River to Fort Ellice, to where it crosses the Little Saskatchewan, and where I had left the greater number of my party.

From thence I proceeded by this track to Fort Ellice, stopping one day at Shoal Lake in order to make a survey of it; as this track joins the White Mud Road about 18 miles from the Little Saskatchewan, which we travelled back together from Fort Ellice to Red River, I need not give you any description of the country through which it passes.

H. Y. Hind, Esq.,  
&c. &c. &c.

Yours truly,  
(Signed) JAMES A. DICKINSON.

NO. VI.—RED RIVER SETTLEMENTS TO THE SALT REGION ON WINNIPEGOSIS LAKE, THENCE TO THE  
SUMMIT OF THE RIDING MOUNTAIN—THENCE TO THE SETTLEMENT.

SIR,

Red River Settlement, November 8, 1858.

I HAVE the honour to report the result of an exploration of the Salt Region on Winnipegosis Lake, and of the country traversed since the 18th September (the day of my departure from Red River) to October 31st. Accompanied by Mr. Fleming, I skirted the west coast of Lake Winnipeg in a Red River freighter's boat, with a crew of seven men, as far as the mouth of the Little Saskatchewan River. Our progress through the southern half of Lake Winnipeg was delayed by contrary winds, which, however, afforded me time and opportunity to collect numerous specimens in illustration of the rocks exposed on the islands and coast, and to accumulate materials for a geological map of the country.

Numerous rock exposures, showing sandstones, limestones, and shale of Silurian age, are met with some 60 miles north of the mouth of Red River. On some of the islands the exposures are, geologically, of great interest; but, with the exception of sandstone fit for building purposes or the manufacture of grindstones, and of yellow ochre of fine quality, in a silicious limestone rock, no economic materials of particular interest or value were seen.

The west coast of Lake Winnipeg, after passing Grindstone Point, is very deeply indented with bays, whose extremities cannot always be seen from the traverse between the points at their outlets. Frequent soundings showed 60 feet to be the greatest depths in the part of the lake we visited, 12 to 24 feet being the general depth within two miles of the shore. In no point seen do the rocky escarpments exceed 60 feet in altitude; but when they are found having that elevation, they present a succession of wild, picturesque, and rugged scenes.

The lowest rock, often at the water's edge, is a sandstone, very friable, and easily disintegrated by waves and atmospheric agents. Above this a limestone, beautifully stratified, and of a hard and compact character, occasionally projects for many feet, the beach below being strewn with large masses, which have fallen off from time to time. In the shaly portion, numerous nodules of iron pyrites occur, assimilating the forms of shells, spheroids, discs, &c. Both the limestone and sandstone

are nearly destitute of fossils, but the shale contains certain forms in great abundance, in a very fragile condition. The rocks on the west coast of Lake Winnipeg, and on many of the islands, are fossiliferous, while the east side is wholly Laurentian. The Laurentian and fossiliferous rocks often approach one another; but I was not fortunate enough to find on the east side the fossiliferous rocks reposing on the Laurentian.

Our course to the Salt Region lay up the Little Saskatchewan, a fine, broad river, leading from Lake Manitobah into Lake Winnipeg, and forming the chief outlet by which the drainage water of a very large tract of country finds its way to the sea. The Little Saskatchewan flows for 16 to 18 miles through a flat country, between clay banks, which never exceed 30 feet in altitude. The river is rapid, and in some parts shallow, its channel being often obstructed by boulders, although it nowhere opposes an obstacle to the passage of craft drawing less than two and a half feet water. This river issues from St. Martin's Lake, a sheet of water about 30 miles long and 16 broad. The rocks in St. Martin's Lake possess some remarkable geological relations. Near the narrows, at its eastern extremity, are two gneissoid islands, and close to them one of metamorphosed sandstone, with the tilted strata of sandstone inclined at an angle but a few degrees from the vertical. West of these gneissoid islands, and about half a mile distant from them, Sugar Island discloses cliffs of metamorphosed sandstone, inclined at an angle of 45 degrees, and dipping N. 70 W. This sandstone contains some very obscure fossil remains, in which the stems of encrinites were thought to have been recognized.

The occurrence of metamorphosed Silurian strata, even on a small scale, is of very great interest. The gneissoid rocks were traversed by quartz and felspathic veins; but although a careful search was made for the precious metal, none was found.

Sugar Island is named from the ash-leaved maple, which grows there, and furnishes a supply of sugar to the Indians who inhabit this part of the country. About six miles west of Sugar Island, horizontal and undisturbed limestone, highly fossiliferous, is seen exposed in cliffs about 16 feet high on Thunder Island, so named in remembrance of a thunder storm of great violence, accompanied by hail and rain, which detained us on the afternoon of September 28th. St. Martin's Lake is very shallow, and in many parts thickly set with weeds. By the action of ice, long semi-circular accumulations of boulders have been driven up in shallow places, forming reefs, which soon become islands, or, connecting with the main land, cut off large portions of the lake, and give rise to the formation of marshes and swamps in their rear. The effect of this is gradually to diminish the size of the lake on one side, and probably to increase it, though not to the same extent, in another direction. These constant changes were observed on a larger scale, some weeks later, in Winnipegosis and Dauphin Lakes, and will be fully discussed in my general Report. Their relation to the past history and probable future of an extensive portion of the country included within the salt region, is very instructive and curious. St. Martin's Lake receives the waters of Partridge Crop River, which flows for the most part through a flat limestone country, not ten feet above the present level of the lake, and often not five feet above the river; many parts, indeed, being even now nothing more than extensive wide spread marshes, through which the river meanders.

At the upper end of Partridge Crop River, the Mission of Fairford is established, where I was very hospitably entertained by the Rev. Mr. Stagg. The present prospects of this Mission are at first sight encouraging; but, when the number of years during which Missionary labour has been directed to the Indians frequenting Partridge Crop River and the neighbouring country is considered, perhaps no more hopeful results among adults have been obtained than can be discerned at other stations of bygone reputation and worn-out resources.

We entered Lake Manitobah on the 29th September, and fortunately found some fine rock exposures on the east coast, which will enable me to carry on the succession of rocks in their order of occurrence. A few days sailing and pulling brought us to the mouth of Water Hen River, which we ascended, and entered Water Hen Lake, then passing on to Winnipegosis Lake, we arrived at the Salt Springs, about six miles north-west of Moss River, on the 5th October. We spent two days at this place, occupying the time in making a plan of the works and springs, and examining the surrounding country. It may be sufficient here to state in relation to the manufacture of salt, that the method employed is of the rudest and most primitive description, nevertheless the salt obtained is abundant in quantity and excellent in quality. Wells to the depth of five feet are sunk near the spot where a little bubbling brine spring is found. I saw several of these springs at some distance from the wells, which, to the number of twenty-six, had already been opened. The brine is carried in buckets to the evaporating pans, which are of iron, about five feet long, two feet broad, and 16 inches deep, placed on rough stones so arranged as to form the sides of a rude furnace below the kettles. The salt is removed by wooden shovels from the pans as fast as it accumulates, and is stored for transmission to Red River without further purification. From each pan about two bushels of salt on an average can be procured daily during the long days of summer. Wood for fuel is close at hand, and of brine an unlimited quantity could doubtless be procured by boring. When a well does not yield brine freely enough, another is dug near to it; none of them however are more than five or six feet deep, and no attempt at boring or deep-sinking has been made; the supply of brine being sufficiently abundant for all present purposes. No rock exposures are found at or near the springs. The soil in which the wells are dug is a stiff yellow clay, very retentive, and holding drift boulders of limestone, with a few of the non-fossiliferous rocks. From the general aspect of the country there can be little doubt that boring would bring an abundance of brine to the surface. Large areas of so-called salt ground, that is of ground absolutely barren and often covered with efflorescent salts, are plentifully distributed over the country bordering Winnipegosis Lake; and the existence of various brine springs is well known to



Indians and half-breeds from Swan River to beyond the Assinniboine, a distance exceeding two hundred and fifty miles in an air line. At several places salt has been and is now manufactured, or is known to occur as a thick crust on the ground, north and south of the salt springs just described. These are, the Salt Springs of Swan River, and of Duck River at the foot of Duck Mountain; the springs at Salt point, Winnipegosis Lake; at Crane River, Manitobah Lake, and at the Scratching River, south of the Assinniboine. It will be shown in my general Report that the salt-bearing rocks probably extend from near the Saskatchewan to beyond the 49th parallel in a general north and south direction, and it is extremely probable that with boring, brine could be found in workable quantities over a very extensive area of country in the direction indicated above.

Leaving the Salt Springs we ascended Moss River, and after some delay, owing to the shallowness of the water and the occurrence of rapids involving portages, we reached Dauphin Lake. The elevation of this extensive sheet of water above the sea level is about seven hundred feet. Its length may reach twenty-one miles but its breadth does not exceed twelve. It receives several tributaries which rise in the Duck or in the Riding Mountain, none of them capable of receiving a freighter's boat for more than seven miles from the Lake. To the west of Dauphin Lake lies the imposing range of the Riding Mountain, the nearest point of its summit being about seventeen miles distant from the shore of the lake.

North-east of Dauphin Lake is the Duck Mountain, a high range of table-land similar in its external aspect to the Riding Mountain. From the imposing appearance which the Riding Mountain presents from Dauphin Lake, and the singular relation it bears to the level marshy plain from which it rises, I thought it would be highly advisable, if possible, to reach the summit. Several difficulties were urged by the Indians we met against the ascent, chiefly on account of the swampy and boggy character of the level country at its foot. They stated that no difficulty would be found in passing through the valley between the Riding Mountain and Duck Mountain by an Indian pitching track. It appeared, however, important that an ascent should be made in as direct a line as possible from Dauphin Lake, to the nearest and highest point; and with this object I set out with Mr. Fleming, four men, and an Indian, on the 8th October. The statement of the Indians respecting the existence of formidable swamps and bogs was quite true, and it was with some difficulty we got through them. On the evening of the first day we encamped at the foot of the mountain, having accomplished a distance of twelve and a half miles. In the afternoon of the second day we reached the summit. The latter part of the ascent was very steep, through a forest containing very fine white spruce, aspen, poplar, and birch. The Riding Mountain at its eastern exposure forms the abrupt termination of a series of elevated table lands which rise one above another from the south and west by distinct steps, commencing within 10 miles of the Assinniboine; its breadth is consequently about 40 miles; its altitude above Lake Dauphin fully exceeds 1,000 feet, which makes it nearly 1,700 feet above the sea. The whole of its rise above Dauphin Lake is embraced within five and a half miles, but its greatest rise is included within a mile and a half. The eastern escarpment of the Riding Mountain bears the aspect of an ancient sea coast, once abrupt, afterwards by atmospheric influences rounded, abraded, and sloped. The last rise is very steep, showing a cliff bank of drift clay with boulders, about 250 feet high, terminating in a sharp well defined margin at its summit, from which the country slopes very gently westward.

Only one rock exposure was met with during the ascent; this occurred at an elevation of about 400 to 600 feet above Dauphin Lake, and I was at once enabled to identify the formation with its extension on the Little Souris, the Assinniboine below Fort Ellice, and the Qu'Appelle or Calling River. It belongs to the Cretaceous group, and, by its presence on the Riding Mountain, settles the question of the occurrence of coal of Carboniferous age between this range and the south branch of the Saskatchewan.

The result obtained by the ascent of the Riding Mountain has been of great interest in a geological point of view, since it has unlocked, in a great measure, the geology of this region of country. Such bold eminences as the Riding and Duck Mountains, uprearing their eastern flanks to an altitude exceeding 1,000 feet above the surrounding country, naturally gave rise to many conjectures as to their origin and composition. They are probably nothing more than the remains of vast cretaceous and tertiary table lands, stretching from the Saskatchewan Valley to the Laurentide Mountains, which have escaped denudation; and the uniform dip of the strata, wherever seen, appears to show that no disturbance has taken place since the Devonian period.

The forest on the summit of the Riding Mountain is very fine, vindicating the soil and climate of Rupert's Land from the sweeping detractions which have been urged against them. I beg to subjoin the circumference, five feet from the ground, of a few trees within 50 yards of our camp on the Riding Mountain;—Aspen, 4 ft. 6 in., 4 ft. 1 in., 3 ft. 9 in., 5 ft.; white spruce, 7 ft. 3 in., 5 ft. 6 in., 6 ft. 6 in., 6 ft.; birch, 3 ft. 6 in., 3 ft.; poplar, 4 ft. 9 in., 4 ft. 6 in. These trees represent, as far as observations permitted, the general character of the forest on the summit plateau of the Riding Mountain.

During the night of our encampment a snow storm came on, and in the morning six inches of snow warned us to hasten to lower and more genial regions. We accomplished the return to the boat on Dauphin Lake on the afternoon of the fourth day; but I regret to say that the constant wading through ice-cold water for many hours together, in crossing the swamps, disabled two of the men, who suffered much pain in the head and limbs, until partially relieved by bleeding, vomiting, and warm applications.

The character of the region between Manitobah Lake and the Riding Mountain remained to be ascertained, in order to complete a general outline of a topographical sketch of the country. With some difficulty I prevailed upon an Indian to guide me from Dauphin Lake, in as straight a line as possible, to the H. B. Co.'s post on Lake Manitobah, a distance of 70 miles from our camp. I then

placed the boat in charge of Mr. Fleming, instructing him to meet me at the Manitobah post as soon as possible. With a half-breed, and an Indian as guide, I proceeded across the country, fortunately without knowing its character beforehand, or I should scarcely have ventured on such a fatiguing journey at so late a season of the year. For thirty miles we had to wade through marshes and bogs, separated by low ridges; in fact the distance named may be said to be made up of marsh, bog, ridge, marsh, bog, ridge, in most wearisome succession. We had horses to carry our provisions and bedding, but the bogs were so bad that, in order to get the horses through them, we were compelled to carry the load ourselves. A thin crust of ice, a quarter of an inch thick, was formed over their surface the night after our start, which added in no slight degree to the fatigue of the journey. Upon our arrival at the post I was very hospitably received by Mr. McKenzie, the gentleman in charge.

The greater part of the country lying between Manitobah Lake and Dauphin Lake, between Dauphin Lake and the Riding Mountain, and between the southern part of Winnipegosis Lake and the Duck Mountain, may be considered as having recently emerged from the former extension of the lakes first named. This emergence has resulted probably from the lowering of waters of the lakes by drainage, and not by a rising of the land. The Little Saskatchewan is not the only outlet from Manitobah Lake into Lake Winnipeg; and before these outlets were eroded to their present depth, the waters in Lakes Dauphin and Manitobah were evidently about 10 or 15 feet above their present level. This is shown by the lowest beach round Lake Dauphin, which, on the west side, is well preserved, about seven miles distant from the present shores. Between Dauphin Lake and Lake Manitobah, the ancient coast of the latter, for a long period of time, is about 20 miles due west from the H. B. Co.'s post, and it follows the shores of the lake until lost in the general rise of the prairie near White Mud River. I find the impression prevailing among Indians and half-breeds familiar with the general outline of this region of country, that the lakes are fast lowering their level, and although they agree in the popular error of supposing here, as elsewhere, that there is a rise and fall every seven years, yet the fall is considered to be greater than the rise. If the drainage of many thousand square miles of swamp and marsh in this part of the country should ever become a question of national interest, I know of no enterprize of the kind which could be executed with so little cost of time or labour, and promise at the same time such wide spread beneficial results.

Commencing about 15 or 20 miles south of my track, as shown on the map which accompanies this report, the country is represented to be dry, and to contain large areas of land fit for agricultural purposes. This statement, received from persons familiar with its general character, is partly confirmed by the observations we were able to make when on White Mud River, in September. Our course will be seen on the map which accompanied the last report I had the honour to address to you.

From the 17th to the 28th October, while awaiting Mr. Fleming's arrival, I was employed in examining the country in the neighbourhood of the Manitobah post, and as far as Manitobah Island, from which the lake takes its name. I spent four days on this island, which has acquired celebrity from the superstitious belief of the Indians, that it is the abode of a kind of "Manitou" or fairies. Limestone is here exposed in cliffs 15 feet high, on the north side; it contains but few fossils, is extremely hard, and produces, when struck with a hammer, a distinct ring, so that when the waves beat on the shore, and strike on the shingle at the base of the cliff, a loud musical sound, not unlike the ringing of a large number of distant church bells, is produced. Limestone, of a very compact and fine grained description, occurs in massive layers a few feet from the ground; many small pieces, well adapted for lithographic purposes, can be procured, but I fear, in an economic point of view, the value of the rock as a source of lithographic stone, in large slabs, is inconsiderable, on account of the occurrence of the forms of shells which have been replaced by crystalline carbonate of lime, of a softer description than the matrix.

From Manitobah post we proceeded by the east coast of Lake Manitobah to Oak Point, where we exchanged our boat for horses and carts, and started for Red River, *via* Shoal Lake, where we arrived on the 31st October.

On the 18th December Mr. Dickinson set out to explore the country between the Assiniboine and the 49th parallel, in accordance with instructions, of which a copy is herewith transmitted. I beg to refer you to Mr. Dickinson's report for an account of the results of his exploration. The examination of the country east of Red River was undertaken with a view to place you in possession of a summer reconnaissance of that important district; Mr. Dawson's exploration having been made during the winter months, when the swamps and bogs were frozen.

The map which accompanies this report is based upon Thompson's map, with such alterations as the time at our disposal enables us to make. It is only intended to illustrate, for the present, the general features of the country, as well as to show our several tracts and the area traversed. The dotted red line indicates the general direction of the tracks followed; but the traverses made from time to time are not represented; these, with the soundings—(upwards of 350 by the lead)—are necessarily reserved for the General Report, and its accompanying maps and charts.

Mr. Hime occupied the period of his stay on Red River in executing a number of photographs of scenery, churches, buildings, Indians, &c., which will form an interesting collection.

I am glad to be able to state, that during this last exploration, as in the summer expedition to the south branch of the Saskatchewan, no accident or untoward event of any description has occurred to interfere with our progress or lessen its results.

In inspecting the accompanying map, I beg to refer you to the one which accompanies the report dated September 10th, from which the connexion between the two explorations will be apparent.

Hon. T. J. J. Loranger, M.P.P.,

Provincial Secretary,

&c. &c. &c.

I have, &c.

(Signed) HENRY Y. HIND.



DEAR SIR,

Red River Settlement, September 16, 1858.

ONE of the alleged drawbacks to the settlement of the valley of Red River and the Assiniboine, is the scarcity of timber fit for building purposes. You will remember that during our journey up the Assiniboine, in June last, we frequently saw an extensive forest, stretching for many miles in a southerly direction, on the right or south bank of the river. It is very desirable that the nature and extent of the forest should be determined, and the character of the timber composing it ascertained. As soon, therefore, as you can complete your preparations, I would wish you to determine the limits or boundaries of the forest referred to, and by making frequent traverses or inter-sections, ascertain the general character of its timber.

As far as is consistent with the safety of your party, you will also examine the country between the Assiniboine River and the 49th parallel, west of Red River, and if time permits, the country east of Red River, and between German Creek and the 49th parallel.

Jas. A. Dickinson, Esq.,  
&c.      &c.      &c.

I am, &c.  
(Signed) H. Y. HIND.

## NO. VII.—THE COUNTRY EAST AND WEST OF THE RED RIVER, NORTH OF THE 49TH PARALLEL.

DEAR SIR,

Red River Settlement, November 2, 1858.

IN accordance with your letter of instructions, dated September 16th, I proceeded with my party, on the 18th, to examine those various portions of the country therein specified.

As the country east of Red River—extending to the Lake of the Woods—is quite unknown, except for a few miles back from the river, to any but to those Indians who have there their hunting grounds, I was anxious to procure one of them as a guide. Having succeeded in doing so after some little delay, I was obliged to examine this part of the country first, as the Indian guide was about to leave the settlement in a few days for his winter quarters, and if I had not secured his services immediately, would have failed in doing so afterwards.

Considering that one of the objects of this exploration should be that of seeing where a *summer road* could be most easily made from Red River to the Lake of the Woods, that being now a subject of great interest among the settlers, who were about sending a party out for that special purpose, I thought it advisable first to go along the straight picket line made by Mr. Dawson last winter, in which direction, I understand, he reports that a road can be made for some miles, in order that I might be able to institute a comparison between this and any other portion of the adjacent country through which the Indian might guide me.

The first day I was able only to go about 14 miles—two-thirds of this distance at least being through marsh and wet prairie.

The general course was along the picket-line, from which I was obliged to diverge frequently—sometimes a mile or more, but always keeping it in view—in order to avoid, when possible, the wide marshes through which it passes. The next day I continued in the same direction, and having reached a point opposite the 22d mile-post, on the picket-line, I could go no further, being stopped by a swamp or quagmire, impassable for horses, or even men, extending in front for many miles, and on both sides as far as the eye could reach. Though taking advantage of all the dry places within reach, 10 miles of the course I took lay through marsh and wet land, and five miles at least through swamp. There are a few small clumps of young aspens along the line, and low willows in some of the marshes; but far away towards the north may be seen some clumps of larger trees.

The land is, for the most part, a rich loam, with a sub-soil of sandy clay; but the difficulty, or rather the impossibility of draining the numerous swamps and marshes, and the want of timber, render this tract of country unfit for settlement; and for the same reasons, the difficulty of constructing a suitable road through it would be very considerable, and the expenses enormous.

Judging, then, that I had seen enough of this part of the country for my purposes, I retraced my steps to the settlement; from which I set out again, under the guidance of the Indian, who promised to conduct me by the only dry path towards the Lake of the Woods, as far as the boundary of his hunting grounds.

On the morning of the 23d, I proceeded along the south side of “la Rivière Seine,” or German Creek, which flows into the Red River a little below its junction with the Assiniboine. There are farm-houses and a good road along it for a distance of five miles, when the Indian’s track then begins, which keeps close to the valley of the Creek for eight miles, between it and the marsh, which is shown on the map.

This dry space varies from half a mile to a quarter mile wide, crossed by two small sluggish creeks, which if widened and deepened would effectually drain the marsh. There is plenty of good timber along the valley, consisting of poplars, elm, and black ash, with small oaks. Leaving the German Creek here on our left, we went along a low ridge about one foot above the level of the marsh, and varying in width from 50 to 100 yards; it runs in a south-easterly direction for about three miles, and then widens out on the left as far as I could see, and on the right to half a mile. At this point we were about three miles from German Creek, which we lose sight of now for some time. Continuing in the same direction for three miles more, through beautiful rich grass, with clumps of aspens on the left and high willows on the right, we came to a creek called Oak Creek, which is about two chains wide, but so still and sluggish that it rather resembles a long lake. Our course then lay along it nearly due east for two and a half miles, when the creek then turns to the south. This would be an admirable place for a settlement, the land being as rich as any in the whole country, and there being a large supply of oak, averaging 1 foot 6 inches in diameter, and poplars suitable for fencing.

On the south side of Oak Creek the open prairie stretches away to the horizon, the greater part of that which was within view being dry, there being only a few patches of wet land. Leaving Oak Creek

we went through a country of this character for about nine miles in a south-easterly direction, our track winding, however, a little to avoid the wet places, a few of which we had to cross; none of them, however, being more than seven or eight chains wide, and easy of crossing. There are numerous clumps of small aspens and willows in every direction. We then proceeded nearly due east for about seven miles, German Creek being from one and a half to two miles on the north, a beautiful and rich prairie lying between us and it, and on the south one mile distant runs a well-wooded ridge, parallel with our course; then turning to the south-east we wound round numerous large clumps of aspen from five to 30 feet high, and willows for seven miles, when we came to a rising ground so densely covered with young aspen and fallen timber that it was impossible for carts to go further; we therefore left them here and made packs of a few things for the horses to carry. Here the land becomes of a lighter description, being of a light sandy and clay loam. The timber has been all burnt, the ground was so thickly strewn with the fallen logs that it was with much difficulty the horses could travel. Two miles further on we came to the banks of German Creek; its valley here is from 15 to 20 chains wide, and about 40 feet deep; it is full of excellent timber, elm, oak, poplar, and black ash, all large enough for building purposes. The creek, which is here very rapid, is 30 feet wide and about 1 foot 6 inches deep. We follow its course now for 27 miles, never being more than half a mile away from it. The country through which we passed is for the most part covered with trees of various kinds, growing in large clumps, balsam poplar, aspen, tamarack, balsam spruce, cedar, and oak. The whole country has been burnt some years ago; the remains of the timber everywhere to be found indicate that there was once a vast forest of large trees.

The Indian guide now said he had come to the boundary of his own country and could not bring me further; and though I tried to induce him by every means, he remained firm to his resolution. He was unwilling for some time even to give me a description of the country beyond; but finally I procured from him the following account:—

At half a day's journey on snow shoes, or a distance of 15 miles from where we were, there is a mountain or ridge thickly covered with trees stretching towards the Lake of the Woods. A part of this intervening space is a swamp in which grow tamarack, cedar, and spruce; the remainder is dry ground covered with small aspens and willows. Passing along the "mountain" you come to a marsh which extends to the "Lake of the Woods;" but through it there flows a river, up which large canoes could come within the hearing of a gun-shot, or about two miles from the mountain. The entire length of the way I had come was 70 miles; 50 miles at least of this distance being fit for settlement, and throughout the whole of it a road could be made without the slightest difficulty and at little cost. If time and means had permitted, I would have pushed through to the lake, but under the circumstances I considered it better not to attempt it.

From the description given by the Indians of the country, and which I think may be relied on as correct, I am of the opinion that a road can be easily made through it.

I returned by the same track as I came by for some distance, when I crossed German Creek, at a place about 35 miles from its mouth, and then continued along the north side of it.

At this crossing place there are two or three houses, the commencement of a settlement which is likely to be quickly extended.

On the 1st of October I set out again to examine the country between the Assiniboine and the 49th parallel; and more particularly the forest which was said to extend for so many miles to the south from the river at Prairie Portage.

Proceeding along the road to St. Paul, I turned off from it where it crosses "La Rivière Salé" (or Stinking River), and went by the hunters' track on the south side of the river, along which it goes for 30 miles, cutting across the large bends of the valley, which is very winding, and through which the river meanders in a remarkable manner.

The country lying between it and the Assiniboine is very marshy, and is covered with willows and clumps of small aspen. In the valley and along both sides grow oak and elm and some fine ash, many trees two feet in diameter—they extend the whole way up the river. On the south side there is a prairie apparently as level and boundless as the ocean; the grass on it is most beautiful and luxuriant, indicating the richness of the soil.

The valley is about 20 chains wide and 40 feet deep; there are many salt springs in it, which make the water in the river quite brackish, from which it derives the name. The river higher up opens out into small lakes, and rises from a marsh which is very extensive. The track here joins the hunters' track from the White Horse Plain; it turns to the south, in which direction it goes for about 12 miles, whence turning nearly due south for 15 miles, it crosses "La Rivière des Isles de Bois," a river 15 feet wide and two deep, flowing into the Scratching River. This portion of the country is all a level prairie, the greater part of it being wet and marshy, except near this river, where it is quite dry for five miles; the land is a rich sandy loam, yielding most luxuriant grass. On both sides of the river there is a skirting of trees, chiefly oak, averaging 1 ft. 6 in. in diameter.

The buffalo-hunters, when they have crossed this little river, begin to keep a sharp look-out for the Sioux, and to take their usual precautions.

The track continuing in the same direction crosses a prairie 20 miles wide.

This prairie is of light sandy soil, with clumps of aspen and willows growing here and there; it is intersected by many small valleys, in all of which, with one exception, the creeks that formed them are now dried up. The valley of "La Rivière Tabac" is seven chains wide and 20 feet deep; there was but very little water at this time in the creek, but in spring time there is a rapid flow.

The prairie on the south and west is bounded by what is generally called the "Pembina Mountain," which is rather a series of steps rising up from the prairie below to one above. There are three steps from 20 to 25 feet high, together with a gradual ascent for two miles; the whole of it is thickly strewn with boulders of granite. This "Mountain," which consists of clay, gravel, and sand, runs



in a south-easterly direction, from a little above Prairie Portage to Pembina. Where we crossed it there is no timber, but on both sides it is well covered, particularly on the south, where the trees seemed large and good. Here the forest is said to begin which reaches to the Assinniboine, but with the exception of some oak on the mountain, there is no good timber, nothing but young aspen from 20 to 30 feet high, growing very close together, forming a dense thicket.

On reaching the summit of the "Mountain," the track turns to the west across a prairie called "the round prairie," which is perfectly level and open for six miles; on the north and south it is bounded by woods of poplars. On its western limit, within a few hundred yards of the track, there is a conical hill about 200 feet high, called the "Calf's Tent;" rather a remarkable looking object, rising as it does so abruptly from out the level plain and alone.

We then crossed an undulating prairie, 10 miles wide, covered with willows and clumps of aspen, from 20 to 40 feet high; the soil is a rich sandy loam. This part of the country is quite destitute of water; there are no creeks, and the ponds which are said to be generally full of water were now quite dry; from 12 o'clock one day to two o'clock the next, we could find none.

Here commences the hilly district; its highest hills, which can be seen so well from the banks of the Assinniboine, are called the "Blue Hills." The general direction of its eastern boundary is nearly S.W. by N.E. The track now turns towards the north-west. The country it traverses for 13 miles may be described generally to be an undulating or rolling prairie, studded with numerous conical and dome-shaped hills, from 50 to 150 feet high, some covered with willows and aspens, and some quite bare. They are all composed of sand and gravel mixed with clay, and having on their flanks many granite boulders.

Running parallel with our track for some miles is a valley, 10 chains wide and 20 feet deep, called "La Grande Coulée," in which there is no water; and we crossed many smaller ones, also dry, connecting with it.

Here I left the track, and went in a northerly direction to the thick poplar woods, the "Le Grand Bois," of the French half-breeds, which seemed six or seven miles away, but on arriving there I found it to consist only of large clumps of aspens and poplars, which at a distance looked like a dense and continuous wood, as it is commonly supposed to be by the buffalo hunters. The trees, though high, only average about nine inches in diameter.

I made several traverses hereabouts, and found that at distances from one to three miles back from the open prairie, the wood becomes densely thick, quite impenetrable in many places.

The trees are all small, none greater than one foot in diameter; they are of the poplar species, with here and there a young oak or a sugar maple.

On my return to the hunters' track we passed by a pretty lake about three miles long and half a mile broad, surrounded by a close mass of poplars and willows. We came upon the track at a point about four miles to the west of where we had left it, and followed its windings through the hills, still going to the north-west. There are here many isolated hills, as well as chains of hills running in every direction. The low ground is generally marshy, through which gently flow several small creeks, all emptying themselves into a stream on our left, which we cross seven miles further on.

This stream is six feet wide and two feet deep; it flows in a valley 50 feet deep, and about 12 chains wide. The ground here is much covered with granite boulders and fragments of shale.

Observing this broken shale throughout the whole of the hilly district to be lying about in every direction on the surface and often turned up by the badgers, I searched on the hill-sides and along the valleys for solid rock but could find none. I suppose it to be, therefore, from its similarity in appearance, drift from the rocks on the Little Souris and other places towards the north where it was found to exist. The country now becomes more hilly than before, and is completely covered with low willows; oaks, and poplars, single and in clumps, grow plentifully on all sides. There are several small lakes, on some of which were large flocks of white swans. The main woods on the right are here from five to six miles distant. This whole region was once upon a time an extensive forest of oak, for everywhere the remains of them are to be found. On the left there are large clumps of balsam poplar, forming for several miles almost a continuous forest. We crossed another of those valleys here so numerous, called "Le Grand Coulé de la Grosse Butte," deriving its name from a large conical hill about 200 feet high. The valley varies in width from 20 to 30 chains, and is about 80 feet deep, but appearing much deeper in many places by reason of the hills adjoining it.

The sides are very precipitous and the bottom is quite level and all covered with beautiful grass; there is no creek flowing through it, or even the appearance of any recent one. Two miles up in it toward the north there is a small lake and another valley branching off from it, which we crossed four miles further on; in it there is a small creek six feet wide, and one foot six inches deep. The track turning to the north soon comes close to "Le Grand Coulé de la Grosse Butte," and continues along it for nine miles. The scenery is now very wild and beautiful; the valley, the bottom of which is 80 feet below the general level of the country, cuts through ranges of hills, many of them 150 feet high, and winds round the bases of others, some bare and rugged and some covered with poplars. There are many lakes of various sizes, which add considerably to the picturesque beauty of this peculiar region, the favourite haunt of the moose and red deer. Travelling on for five miles more we reach the top of a hill, when suddenly bursts on our view a vast undulating prairie stretching away to the Assinniboine and Little Souris. The track, which had been very faint for some time, here became quite invisible. It was thought advisable therefore to return to where another one had been seen branching off, some six or seven miles back. Having regained it we followed it for 18 miles, still among the "Blue Hills," crossing the low ridges and windings through the valleys between the high hills, several of them 300 feet high, and around us were many pretty lakes; we then came upon the open prairie.

From this across to the Assiniboine is 13 miles. The prairie is thickly spread over with low willows, and is swampy in many places; there are but a few clumps of young aspen to relieve its bleak and dreary aspect.

The valley of the Assiniboine where we crossed it, 40 miles above Prairie Portage, is about one mile and a quarter wide; its sides are much broken and indented.

The poplars and oaks, of which it is full, are all young, none exceeding 15 feet in height, and there are no trees of any kind along either side for many miles. The river is at this point 10 chains wide and three feet deep, and has a hard, gravelly bottom, so that we forded it very easily. On the north side of the river are the Sand Hills, through which we passed last June. The forest, whose southern limits I have ascertained, extends 20 miles above Prairie Portage, along the river, where it then dies away. I remained at Prairie Portage three days, making explorations of the forest, and obtaining information concerning it from some people who were well acquainted with it. I found that the good timber grows merely along the river, in width from half a mile to three miles: beyond that the wood is exactly what it is on the south side. Here and there among the young poplars are solitary oaks at long intervals, many of them two feet in diameter, the remnants doubtless of a fine forest. About eight miles back from the river there is a large clump of balsam spruce, but which are all small. The following is a list of the different trees and their dimensions, which form the band of good timber along the river: Oak, 2 ft. in diameter; aspens, 2 ft.; balsam poplars, 2 ft. 9 in.; elm, 1 ft. 3 in.; basswood, 2 ft. 6 in.; ash (very few), 1 ft. There is an abundant supply of oaks, straight and tall, 1 ft. 6 in. in diameter; and of balsam poplars, 2 ft. On the Pembina Mountain there is some good timber, including tamarack, not found elsewhere, but which only averages, I am told, 9 in. in diameter.

Professor H. Y. Hind,  
&c. &c. &c.

Yours very truly,  
(Signed) JAMES A. DICKINSON.

On the QU'APPELLE, or CALLING RIVER, and the DIVERSION of the WATERS of the SOUTH BRANCH of the SASKATCHEWAN down its VALLEY, with a VIEW to the CONSTRUCTION of a STEAM-BOAT COMMUNICATION from FORT GARRY, RED RIVER, to the FOOT of the ROCKY MOUNTAINS.

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SIR,

Toronto, February 3, 1859.

I VENTURE to submit the following notice of the Qu'Appelle River, in anticipation of a more detailed description, which will be furnished in my General Report.

The Hon. C. Allyn, M.P.P.,  
Provincial Secretary, &c. &c. &c.

I have, &c.  
(Signed) HENRY Y. HIND.

1. The discoveries of gold in British Columbia have invested with great interest the facilities for communication which exist between the Atlantic and Pacific seaboard, north of the 49th parallel.



Gold on the Pacific slope of the Rocky Mountains, within British territory, will probably induce a large emigration to that quarter, and speedily create great commercial activity.

2. The valley of the Mississippi being separated from the northern Pacific territories of the United States by an extensive region presenting extraordinary difficulties in the initiation of a commercial or even emigrant route, until the construction of a railway removes the obstacles, public attention in the north-western States of the Union and in Canada has been directed to the valley of the Saskatchewan, and the feasibility of employing it as a link in a great chain of communication between the Mississippi and St. Lawrence on the one hand and the western slope of the Rocky Mountains on the other.

3. For the sake of the valley of the Saskatchewan alone great efforts have been made and are making in Canada to establish a communication between it and Lake Superior, which, for commercial purposes, is in effect the same as the St. Lawrence or Atlantic. These efforts will probably receive a great impetus now that the discoveries of gold in British Columbia are confirmed; while the area over which the precious metal is known to be distributed leads to the inference that its occurrence in quantity sufficient to create a powerful Pacific colony, with great rapidity, is no longer a matter of doubt.

4. During the past summer, when returning from the South Branch, I met several parties of American emigrants, who were proceeding to Fraser's River *via* Carlton House and the North Branch of the Saskatchewan. One party was well furnished and equipped by an influential company at St. Paul, whose objects and proceedings have been published in pamphlet form. Some of the emigrants are wintering at Red River Settlement, purposing early in the spring to follow in the track of the party I met. Others are now organizing in the north-western States, to journey to the "Mines" by the same route. It is apparent that a strong effort will be made to establish a North-western Emigrant Land Route to the Pacific, by the people of the north-western States of the Union. The Missouri route is too difficult and hazardous at present, and that by the North Branch of the Saskatchewan is the one adopted.

5. In the prospectus of the Canadian North-west Transportation Company the line of steam communication proposed is through Lake Winnipeg and the North Branch of the Saskatchewan. Lake Winnipeg is now proposed to be gained from Lake Superior by taking advantage of the navigable reaches of water on Dog Lake, Milles Lacs, Rainy Lake, Rainy River, and the Lake of the Woods, with intervening roads and portages. As the country through which this route passes is an inhospitable region, with few areas fit for cultivation, as far as the west side of the Lake of the Woods, the proposed communication will probably not be open for rapid transit, without enormous outlay is incurred, for a period of several years. Up to the date of my departure from Red River last year, no communication had been effected, in *summer time*, between the settlements and the Lake of the Woods, except in canoes, although every effort was made to pass through the formidable bogs and swamps which intervene. This important link on the proposed line of route is still a *terra incognita* for a short distance.

6. The projectors of the navigation of Red River below Breakenridge, in the State of Minnesota, look also to the North Branch as offering the most favourable means of reaching the foot of the Rocky Mountains. They are constructing a steamer on Red River, and propose to connect, by a line of stages, with Crow Wing and St. Paul. Crow Wing is within 120 miles of Lake Superior City, and a travelled summer road already exists between them. As no impediment is known to exist in the navigation of Red River for steamers of shallow draft, the close of this summer will witness, no doubt, the navigation of the Red River of the North by steam; and its connexion with Lake Superior on the one hand, and the Mississippi on the other, by travelled roads. This connexion can be maintained during the winter months, from Crow Wing or St. Paul. In these projects, so rapidly approaching completion, the North Branch of the Saskatchewan is the route to be followed to British Columbia. In a word, public attention seems to be almost exclusively directed to Lake Winnipeg and the North Branch.

7. One of the results of this Exploring Expedition to the South Branch of the Saskatchewan last year has been to ascertain the practicability of constructing, at a very small cost, when compared with a railroad, a communication for steamers of considerable size to near the foot of the Rocky Mountains, by an undescribed route, which starts from Fort Garry or any navigable part of Red River, proceeds up the Assiniboine to the mouth of the Qu'Appelle or Calling River, then up the Qu'Appelle valley to the South Branch of the Saskatchewan, then up the South Branch to Bow River. Bow River is an affluent of the South Branch issuing from the Bow River Pass, one of the best in the Rocky Mountain range. In order to convert this route into a steamboat communication without any serious interruption,\* the diversion of the waters of the South Branch down the Qu'Appelle valley is involved.

8. In September last I communicated to you under date, Red River, Sept. 10th, the results of an exploration of the Qu'Appelle River valley. I have now the honour to submit the plans of that exploration on a scale of two inches to one mile. My instructions authorized me to make a survey on a scale of two miles to one inch, but in consequence of the great importance of this valley, and of the subject to which it refers, I have preferred to send you plans for the information of the Government on a much larger scale, without however intending them to stand in place of those which will accompany the general report.

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\* A short break might be required about 150 miles from Red River, to overcome a very rapid descent of the Assiniboine, but this break would occur a short distance from a splendid agricultural country, and would involve a portage road over a sandy tract of between 20 and 30 miles. It is, however, probable that steamers of high power would be able to ascend the current at the spot referred to.

9. I now proceed to show the relation of the Qu'Appelle valley to the South Branch of the Saskatchewan and Assiniboine Rivers, and to trace the results of sending the waters of the South Branch down the Qu'Appelle valley into the Assiniboine, thence into Red River, past Fort Garry, and finally into Lake Winnipeg.

10. The valley of the Qu'Appelle River joins the Assiniboine five miles above Fort Ellice, and by the windings of the river valley about 360 miles from Fort Garry. It is 270 miles long, and appears to be a former continuation of the South Branch, in a direction nearly due east, to the low regions now occupied by Lakes Manitobah and Winnipeg. Its western extremity issues from the South Branch at the Elbow, or the point where that river from a due easterly course, suddenly takes and preserves for 250 miles a northerly course, until it joins with the North Branch.

11. The narrowest breadth of the bottom of the Qu'Appelle valley is half a mile; its greatest breadth about one mile and a half. Its shallowest part is about 120 feet below the level of the prairie, and its greatest depth is between 350 and 400 feet. It cuts a gently sloping plain, extending from the South Branch to the Assiniboine. The surface of this plain is slightly undulating, and at its western extremity sand hill ranges and sand dunes in process of formation occupy extensive areas.

12. The highest part of the bottom of the Qu'Appelle valley is only 85 feet above the South Branch at its summer level, and from 75 to 78 feet above it during the spring elevation of its waters. This occurs at a point distant  $11\frac{1}{2}$  miles from the junction, where a lake is found, which discharges itself both into the Saskatchewan and Assiniboine. Before connecting with the Assiniboine, it falls 284 feet in 256 miles, or 1 ft. 1 in. per mile. The difference of level between the South Branch, at one end of the Qu'Appelle valley and the Assiniboine at the other, is only 200 feet.

13. In its long, deep, and narrow course there are eight lakes, having an aggregate length of 54 miles. Most of these lakes abound in white fish of great size and the finest quality. They are connected with Long Lake, as shown in sheet No. 10, occupying another valley running north-westerly, a counterpart of that of the Qu'Appelle, inosculating with it at the Grand Forks, and with the South Branch some 30 miles north of the Elbow. Long Lake is 40 miles long, similar, as far as I saw of it, to Buffalo Pound Hill Lake (shown on sheet No. 11), in the Qu'Appelle valley. It occupies a deep, narrow, excavated valley, not exceeding a mile and a half to two miles broad, and from 300 to 400 feet deep.

14. Numerous measurements of the depths of the Fishing Lakes showed them to hold from 40 to 66 feet of water. These depths were maintained with great regularity. Timber ceases in the valley about 168 miles from the Assiniboine. It appears again at the Moose Jaws Forks, 194 miles from the Assiniboine, and occurs again in small quantities at the Sandy Hills, near the Height of Land. Moose Jaws Forks is well wooded for a considerable distance: it comes from the Grand Coteau de Missouri, whose blue outlines are distinctly visible from this point of the Qu'Appelle valley.

15. Without considering here the question whether the South Branch did ever pass down the valley now occupied by the insignificant Qu'Appelle, I propose to glance at the kind of work which would be required to send its waters through this magnificent channel, into that of the Assiniboine, and thence past Fort Garry into Lake Winnipeg. And I may here remark, that almost every spring, the whole of the Qu'Appelle valley is flooded from the Height of Land to the Assiniboine. We frequently found water-marks eight feet above the level of the river in August last; *so that there does occur, for a few weeks or days each year, when the snow melts, a continuous water communication from Fort Garry to near the South Branch*, similar to what would be produced if the Saskatchewan were diverted down the valley of the Qu'Appelle. In 1852 it was converted into a lake from the Sandy Hills to the Assiniboine.

16. A dam, 85 feet high, and 600 to 800 yards long (a few miles lower down the length of the dam would be much less) across the deep narrow valley in which the South Branch flows, below where the Qu'Appelle valley joins it, would send its waters down the Qu'Appelle valley, thence down the Assiniboine past Fort Garry, and thus establish a splendid and probably uninterrupted navigation, for steamers of large size, for a distance exceeding 600 miles. Beyond the point I reached, the South Branch was reported to me, by the half-breeds who have visited it, to contain no impediment as far as the mouth of Bow River, a distance westward of 300 miles. By the Crees of the Sandy Hills, who hunt on the Qu'Appelle and the South Branch, I was also assured that no rapids or impediments of any description, beyond changing mud and sand-bars, exist between the Elbow and Bow River. The magnitude of the South Branch at the Elbow, and the character of the country through which it flows, lead to the inference that at the mouth of Bow River it is still a large and navigable stream.

17. Whether it would be a matter of economy to construct a dam, 40, 50, or 60 feet high, across the South Branch, and make a cutting through the Height of Land in the Qu'Appelle valley, corresponding to the altitude of the dam, is an engineering question I am not competent to discuss. It may be here remarked that the hill sides and the valley of the Qu'Appelle, for a distance of six miles from the South Branch, are covered with large boulders, and would furnish an abundant supply of that kind of material. Large and water-worn trees of many species were observed on the sand-bars and mud flats of the great river, evidently brought by the stream from some distance above.

18. It will be asked whether injurious consequences to the settlements on Red River and the Assiniboine might not ensue from the passage of so large a body of water, during spring freshets, down the valleys of those rivers. The answer to this question is rendered remarkably simple, by the peculiarity of the valley of the Assiniboine just before it merges into the open low prairie country, two miles above Prairie Portage. Here the river glides in an excavated trench about 16 feet below the prairie, but in times of very high floods it sends water across the prairie, down the broad, shallow valley of Rat Rivulet, into Lake Manitobah. Rat Rivulet rises in the Bad Woods, west of Prairie



Portage, within two or three miles of the Assinniboine; and the ridge which divides it from the river is an imperceptible rise in the prairie which the eye can scarcely detect. A shallow cut through the gentle rise separating the Assinniboine from Rat Rivulet would permit all flood waters to flow into Lake Manitobah, and protect the settlements on Red River from any danger of being flooded.\*

19. The country drained by the South Branch above the Elbow is very little known. The descriptive accounts I received from half-breeds who have traded with and resided among the Blackfeet Tribe of Indians occupying this region were very encouraging as regards the Bow River, especially in respect of climate, and the timber which covers the eastern slope of the Rocky Mountains. They represent it as far more attractive and delightful, in every way, than the region drained by the North Branch and its tributaries, which, being cut by the 54th parallel of latitude, is three degrees further north, and thus suffers from many of the disadvantages of climate belonging to its geographical position.

20. As an instance of the difference in climate between the North and South Branch, I may mention that, in August last, we found the Mesaskatolina berry ripe, luscious, and in the greatest profusion on the Qu'Appelle and South Branch, growing on trees 16 to 20 feet high, whereas on the North Branch, ten days afterwards, they were found scarcely ripe, on small stunted bushes from five to seven feet in altitude. I had an opportunity of conversing with men who had resided for years among the Blackfeet, and who had wandered backwards and forwards from Bow River to the Columbia, through Bow River pass; from their descriptions I infer that, in point of soil and climate, the eastern slope of the Rocky Mountains, unwatered by Bow River and Red Deer River, is well adapted for a grazing country.

21. The advantages to be derived from the suggested diversion of the waters of the South Branch down the valley of the Qu'Appelle, are numerous and highly important.

(1.) The distance between Fort Garry and the foot of the Rocky Mountains would be shortened by at least 400 miles.

(2.) The route would be a steamboat navigation, probably with one short break on the Assinniboine, from Breakenridge, on Red River, or any point on Lake Winnipeg, to the foot of the Rocky Mountains.

(3.) Batteaux might drift from Bow River to Fort Garry without discharging cargo, or even touching land.

(4.) The season of navigation would be eight to ten weeks longer than by the North Branch. The ice does not often leave the head of Lake Winnipeg before the 10th of June. The South Branch might be reached from Fort Garry, through the Qu'Appelle valley, by the 10th day of May, often by the 1st of May.

(5.) The proposed route passes through the most promising and fertile part of Rupert's Land, namely, the valley of the Assinniboine. The whole western flank of the Riding Mountain would then become available for settlement, as well as the fertile area south of the Qu'Appelle, as far as the Mission, 119 miles from its mouth. The Touchwood Hill Range, on account of its proximity to Long Lake, would acquire the importance which its wonderfully rich and fertile soil promises for it.

(6.) The best pass through the Rocky Mountains would be approached by the most direct route, and be, in fact, a continuation of that route.

(7.) The dangerous and circuitous navigation of Lake Winnipeg avoided, the Grand Rapids surmounted, and the yet apparently unknown difficulties of the Coal Falls, just above the Forks of the Saskatchewan, overcome. The "Coal Falls" are situated on the North Branch; they consist of a series of rapids for 18 miles, and are much obstructed by boulders, many of which are exposed during low summer levels. In the South Branch, for a distance of 250 miles, I saw no rapid which might not be ascended with ease by any river steamer, and at the Elbow it is a finer stream than the North Branch is at the Grand Forks.

(8.) The route from Lake Huron, viâ Lake Superior and Lake of the Woods, would lie in a line nearly straight to the Rocky Mountains.

22. These observations apply exclusively to a steamboat route, which is necessarily limited to the summer months. But in the initiation of any permanent postal route across the continent, north of the 49th parallel, the means of establishing a winter communication must not be omitted. If possible, the summer and winter route should coincide, and pass through areas of country fitted to invite settlement, and become centres of civilization in this vast unpeopled wilderness.

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\* In Mr. Dawson's Report, dated Toronto, February 22, 1859, the following foot note is inserted:—"Since writing the above, I have had the advantage of hearing Professor Hind's lecture on the subject to which it refers; but even admitting that the whole volume of the South Branch of the Saskatchewan could be turned into the Qu'Appelle, it must not be supposed that locks could be dispensed with. It is possible, indeed, that in the valley of the Qu'Appelle itself, where the descent is represented as being very gentle, the current might not be too strong for steamers of great power. But on the Assinniboine, from the Rapid River downwards, in making the descent from the higher prairie to the lower, where, as I have said, there must be a fall of 300 feet, the accumulated mass of water would rush with the impetuosity of a mountain torrent. The plains of Red River would be converted into a sea, and the Settlement swept into Lake Winnipeg." It is necessary to mention, in relation to this paragraph, that I exhibited at the lecture referred to, a map on a scale of two miles to one inch of the country between Lake Manitobah and the Assinniboine, showing the valley of Rat Rivulet, and the means to be adopted to prevent the injurious consequences which might be supposed to arise from the passage of so large a body of water as that of the South Branch of the Saskatchewan in conjunction with the Assinniboine, past the Settlements at Red River during spring freshets. Mr. Dawson appears to have forgotten this map and the explanations which accompanied its production, otherwise he would not have imagined "*the plains of Red River converted into a sea, and the Settlements swept into Lake Winnipeg.*" This forgetfulness is the more remarkable, since it appears that Mr. Dawson was familiar with this old water-course of the Assinniboine long before the above description of the Qu'Appelle valley was published, for I find on page 6 of his Report, under date "4th July 1858," the following paragraph:—"In speaking of navigable lines that might be made available, I should mention that at the Grand Portage there is said to be an *old water-course, by which the Assinniboine, in all probability, has at some period discharged its waters into the Manitobah Lake.*" "*The accumulated mass of water, rushing with the impetuosity of a mountain torrent,*" is a poetical description of a phenomenon which is approached every spring when the snow melts; but it leaves no traces of its occurrence beyond water-marks on the sides of the deep broad valley in which the Assinniboine flows, and on the trees which cover a large portion of the flats. (See paragraph No. 15, of this communication.)

23. The line of route by the Assiniboine, Qu'Appelle, and South Branch, is admirably fitted for a postal communication, which could be carried on during summer and winter, by horses and dogs, at a minimum speed of 100 miles a day. This might be easily accomplished by the establishment of post stations in localities where they would become centres of population in the midst of fertile areas. Such areas are known to exist on the line of route (see No. 5, paragraph 21) proposed, as far as the South Branch, beyond which is an unexplored region to the mouth of Bow River. The humanizing influence of missionary enterprise could be most favourably pursued at these stations.

24. Considered apart from the great local advantage of possessing a steamboat communication to the foot of the Rocky Mountains, either by the North or South Branch, the occurrence of gold in unexpected abundance in British Columbia, not only on Fraser's River, but also on Thompson's River and elsewhere, over wide areas, coupled with the emigration and commercial activity to which it will give rise, is sufficient, I think, to warrant me in drawing your attention to the subject. It is one which is continually acquiring increased importance; in the eyes of our American neighbours of the western states it is of paramount interest; and I think we may look upon the banks of the South Branch of the Saskatchewan as the great emigrant route to British Columbia which will be eventually adopted.

25. The opening of a route between Red River and Lake Superior will now rapidly grow into importance, and the communication between the Atlantic and Pacific by Lake Superior, Rainy Lake, the Assiniboine, and South Branch of the Saskatchewan, begin to involve commercial and political advantages of the highest importance to secure.

The following maps accompany this communication :—

- I. A map of the valley of the Qu'Appelle, on the scale of two inches to one mile.
- II. A map of the country between the Assiniboine and Manitobah Lake, showing the valley of Rat Rivulet.
- III. A map showing the proposed route across the Continent.

#### PRELIMINARY REPORT.

SIR,

Toronto, March 28th, 1859.

I have the honour to address to you a Preliminary Report on the results of the Assiniboine and Saskatchewan Exploring Expedition to accompany the topographical maps of the region explored. These maps are constructed upon a scale of two miles to one inch in compliance with your instructions dated 27th April 1858.

I have sent to you from time to time, during the past summer and autumn, Reports on the progress of the Expedition. These reports were as follows :—

No. 1. Dated Grand Portage, Lake Superior, May 5th.

No. 2. Dated Red River Settlement, June 3rd. Including a Report on the Pigeon River Route, by Mr. Dickinson, C.E., with the following maps.

1. Map of the Pigeon River route.
2. A general map of the whole route.
3. A track survey of the Pennawa River.

No. 3. Dated Fort Ellice, July 9th, 1858.

No. 4. Dated Red River Settlement, September 10th, 1858, including a report on the track Survey made by Mr. Dickinson, with one map showing the extent of country traversed by the Expedition.

No. 5. Dated Red River Settlement, November 8th 1858, including a report by Mr. Dickinson on a track Survey south of the Assiniboine, &c., with a map showing the extent of country traversed by the Expedition.

On February 3rd, 1859, I had the honour to submit to you a communication "On the Qu'Appelle or Calling River, and the diversion of the waters of the South Branch of the Saskatchewan down its valley, with a view to the construction of a steamboat communication from Fort Garry, Red River, to near the foot of the Rocky Mountains;" with, 1st, a map of the Qu'Appelle River valley from the South Branch of the Saskatchewan to the Assiniboine River, on a scale of two inches to one mile.

2nd. A map of the country between Prairie Portage on the Assiniboine and Lake Manitobah.

I now beg leave to describe the general features of the whole country explored, as delineated upon the large map which accompanies this outline of the results attained during the past year.

#### AREA TRAVERSED.

The country traversed by the Expedition is embraced between the 49th and 54th parallels of latitude and the 96th and 107th degrees of longitude. The lines of Exploration crossed an area of about 80,000 square miles, or nearly equal to that of Great Britain. The form of this area is similar to that of a parallelogram, being bounded on the south by the 49th parallel, and a line drawn from the point where the Little Souris River cuts it, to the Elbow of the South Branch of the Saskatchewan.

On the east it is bounded by the west coast of Lake Winnipeg, on the north by the Main Saskatchewan, and on the west by the south branch of that river. The longest diameter of this



parallelogram from Pembina to the Grand Forks is about 450 miles, and its transverse diameter slightly exceeds 330 miles.

#### SURFACE FEATURES.

The whole country, from the South Branch of the Saskatchewan to the valley of the Assinniboine, slopes in an easterly direction, with a general inclination of about one foot in a mile. This slope is continued throughout the valley of the Assinniboine to Red River, after a rather abrupt descent near where the Assinniboine makes its easterly bend.

North-east of the Assinniboine the country rises almost imperceptibly for a distance of 15 to 35 miles, as far as the base of a series of hill-ranges lying parallel to the general direction of the river valley before it makes its easterly bend; it then rises by successive steps and sloping plateaux to a summit altitude of about 1,000 feet above Lake Winnipeg, or 1,600 feet above the sea.

These hill-ranges are known by the names of the Riding Mountain and the Duck Mountain. On their eastern and south-eastern flanks they show an abrupt and broken escarpment, and within the space of five to 15 miles the country sinks from 1,600 to 680 feet above the sea, or within 80 feet of the level of Lake Winnipeg.

At the foot of these hill-ranges, and east of them, lie the great Lakes Winnipegosis and Manitobah, which are separated from Lake Winnipeg by a low, marshy, and nearly level tract, having an elevation rarely exceeding 80 feet above it.

A line drawn through the largest expanse of Lake Winnipeg, another through Lakes Manitobah and Winnipegosis, a third through the upper part of the Assinniboine Valley, and a fourth through that of the South Branch of the Saskatchewan, from the Elbow to the Grand Forks, would be nearly parallel to one another, maintaining a direction nearly due north and south, the deviation being in favour of N.W. by N. and S.E. by S. It may be further observed that the Main Saskatchewan, from the Grand Forks to Cedar Lake, and the southern portion of the Assinniboine, flow through valleys also nearly parallel to one another, and at right angles to those before enumerated.

This uniform distribution of lake and river valleys is determined by the direction of the hill and ridge ranges which characterise the country. The South Branch of the Saskatchewan, below Red Deer's River, is separated from the Missouri by the Grand Coteau du Missouri. A continuation or spur of the Grand Coteau comes on the Qu'Appelle River at the Height of Land about 18 miles from the Elbow of the South Branch. Here it is called the "Eyebrow Hill Range," by the Crees. It appears to terminate suddenly in the form of an isolated hill about 400 feet above the plain, called "The Lumpy Hill of the Woods," a few miles beyond the point where the South Branch takes its easterly turn to join the North Branch at the Grand Forks.

The South Branch flows for fully 200 miles below the Elbow at the foot of this continuation of the Eyebrow Hill range, in a northerly direction, and its deep excavated valley appears to lie at an average distance of 12 miles from it. This range is cut by several narrow deep valleys, and from the small lakes or ponds which occupy their summits, water during spring freshets, flows to the Saskatchewan and Assinniboine.

The valley of the Qu'Appelle River is a singular and important instance of this interlockage. A general description of this valley is given in my communication dated February 3rd, 1859. Within 50 miles south-west of the Grand Forks, and a short distance south of the Lumpy Hill of the Woods, there is another deep valley in the dividing ridge, from whose summit-lakelets water flows in the spring to the South Branch, a distance of 10 or 12 miles, and also to the Main Saskatchewan, which it reaches below Pine Lake, a distance exceeding 160 miles. One other interlockage between the South Branch and the valley of the Assinniboine will be noticed in the description of the valley of the Qu'Appelle River.

Besides the imposing Riding and Duck Mountains, the Touchwood Hills may be enumerated as very important and striking in a region whose marked characteristic is that of a gently sloping plain. These hills lie between the head waters of the Assinniboine and the South Branch; the elevation of the highest peak, the Heart Hill, probably does not exceed 700 feet above the general level of the Great Plain. The course of this range is from north-east to south-west, and it forms the most prominent of several ranges which lie parallel to one another. West of the Touchwood Hills the continuation of the range is known by the name of the Last Mountains, and at its base is found one extremity of the Last Mountain Lake, which occupies a valley 40 miles long, and is narrow and deep, like that of the Qu'Appelle River.

South of the Assinniboine the Turtle Mountain is a prominent and important feature. It is cut by the 49th parallel. The Blue Hills of the Souris serve to destroy the general sameness of the prairie level on the river after which they are named, while the Blue Hills south of the Assinniboine, and east of the little Souris River, offer perhaps the wildest and most picturesque scenery in the area here referred to. The Porcupine Hill, Thunder Mountain, and Pasquia Hill were not included within the area explored. They are eminences which lie between the Grand Rapids of the Saskatchewan and the head waters of the Assinniboine, all of them probably forming at a former epoch a continuation of a vast table land, now broken into detached mountain ranges by denudation.

#### LAKES AND RIVERS.

Prominent among the physical features of this region are the vast expanses of water which occupy the larger portion of its eastern area. Lake Winnipeg is 300 miles long, and in several parts more than 50 miles broad. Lakes Manitobah and Winnipegosis together are nearly of the same length,

and the broadest part of the first-named is not less than 35 miles across. Nearly the whole country between Lake Winnipeg and its western rivals is occupied by smaller lakes, so that between the valley of the Assiniboine and the eastern shore of Lake Winnipeg fully one third is permanently under water. These lakes, both large and small, are shallow, and in the same water area show much uniformity in depth and coast line. Several hundred soundings in Lakes Winnipeg and Manitobah showed a greatest depth of 64 feet, which is exceeded by that of the Qu'Appelle Lakes in the valley of the Qu'Appelle or Calling River. Some of the smaller lakes are of dimensions which entitle them to notice. Such are St. Martin's Lake with an area exceeding 300 square miles; Water-hen Lake; Ebb and Flow Lake, and Dauphin Lake, both covering an area of more than 150 square miles.

West of the Assiniboine we have the Qu'Appelle Lakes, situated in the Qu'Appelle valley, eight in number, and with an aggregate length of 70 miles. Besides these, the Last Mountain Lake before mentioned is 40 miles long, and varies from three quarters of a mile to two miles in width. The Qu'Appelle Lakes are very deep, 11 fathoms or 66 feet having been recorded.

North-east of the Touchwood Hills there are numerous large lakes, having areas varying from 120 to 130 square miles. Some of these are strongly impregnated with saline ingredients, and are the haunts of innumerable hosts of geese and other aquatic birds. On the south-east flank of the same range and throughout the plain stretching towards the Assiniboine, lakes and ponds are everywhere distributed.

The western flank of the Riding Mountain is dotted with small lakes, ponds, and marshes; the same remark applies to a large area south of the Assiniboine and east of the Little Souris.

Lake Winnipeg receives the waters of numerous rivers, which, in the aggregate, drain an area of about 400,000 square miles. The Saskatchewan (the river that runs swift) is its most important tributary. The South Branch, 18 miles below the Elbow, and 584 miles from its mouth, is 600 yards broad. The rate of the current is here  $2\frac{3}{4}$  miles per hour; the greatest depth is 10 feet in the main channel; the mean depth across being 4.6 feet. There are channels on both sides of the river, one being 6 and the other 10 feet deep. After passing the Moose Woods about 90 miles from the Elbow the river channel is much contracted, its current is uniform and swift, varying from  $2\frac{3}{4}$  to  $3\frac{1}{4}$  miles per hour; mud and sand-bars disappear, and it flows between high banks of drift clay, with a boundless, treeless, arid prairie or plain on either hand. At the Moose Woods, where the river is very broad and sand-bars numerous, the paddles of canoes have touched the bottom from one side to the other with the ordinary stroke of the voyageurs; this occurred during a season of low water. At the time of our visit in August last, Indians were crossing on horseback from the right to the left bank above the Elbow, the depth not exceeding four feet. Before joining the North Branch the current becomes very strong, often from  $3\frac{1}{2}$  to 4 miles an hour. The river winds between high precipitous banks; forests of oak, elm, ash, aspen, and birch cover the low points, the opposite hill banks being clothed chiefly with birch and aspens. Groves of spruce show themselves on approaching the North Branch, but the soil on the prairie plateau maintains the most luxuriant growth of vetches, roses, and berry-bearing bushes of different kinds wherever the aspen forests have been burnt and open areas formed. From the Elbow to the Grand Forks the distance is 250 miles, and in general, throughout the last 50 miles of its course, the South Branch flows through a thinly wooded country, but possessing a soil of great depth and fertility.

The main Saskatchewan opposite Fort à la Corne is 320 yards broad, 20 feet deep in the channel, and flows at the rate of 3 miles an hour. The mean depth across the river here is 14 feet, but it is in the memory of those living at the Fort, when the river was crossed on horseback during a very dry season.

About 158 miles below Fort à la Corne, near Tearing River, the Main Saskatchewan is 330 yards broad, 22 feet deep in the channel, has a mean sectional depth of 20 feet, and flows at the rate of 2 miles an hour. 291 miles below the Grand Forks the Main Saskatchewan enters Cedar Lake, 30 miles long. Issuing from this large body of water it expands into a small lake, but soon again contracting its channel, the Cross Lake rapids come into view; these rapids have a fall of  $5\frac{3}{4}$  feet. Hudson's Bay Company's boats of four or five tons are tracked up them with half cargo, but loaded boats descending, run the rapids. The length of the portage involved in ascending the river is 230 yards. The Saskatchewan now enters Cross Lake, and after issuing from this elongated expanse of water begins a rapid course to Lake Winnipeg, with a current often 3 and sometimes  $3\frac{1}{2}$  miles an hour. The head of the Grand Rapids is about 4 miles from the mouth of the river. The length of the portage is 1 mile 7 chains. The rapids below the portage are about  $1\frac{1}{2}$  mile long, so that the total length of the Grand Rapids exceeds  $2\frac{1}{2}$  miles. The fall from the west to the east end of the portage, as ascertained by levelling, is  $28\frac{1}{2}$  feet. The fall below the portage is estimated to be 15 feet, consequently the total fall is about 43 feet. The Grand Rapids are run by Hudson's Bay Company's loaded boats; in ascending from the foot of the rapids to the east end of the portage boats are tracked or towed up with half cargo; they are then run back again, and again tracked up with the other half of their freight. From east to west end of the portage boats are tracked up on the south side of the river, with a load of 15 pieces (1,350 lbs.), the remainder of the freight is carried over the portage. The distance from the Grand Forks to the mouth of the Saskatchewan is 342 miles; the distance from the Elbow of the South Branch to the mouth is 603 miles.

The Saskatchewan receives several affluents on its south side, which are important only on account of the fertile tracts of country they drain.

Long Creek rises within 10 miles of the South Branch, and following the same northerly direction, empties itself into the Saskatchewan near Fort à la Corne, after a course of about 40 miles.

Carrot or Root River rises near the head waters of Long Creek, and flowing in an easterly direction to the north of the Birch Hills, empties itself, after a course of 170 miles, near the Pas.



About 110 miles in an air line south from the Grand Rapids, and 136 miles by the canoe route along the coast, Lake Winnipeg receives the Little Saskatchewan or Dauphin River, through which Lakes Manitobah and Winnipegosis discharge themselves. During ordinary summer levels the Dauphin River offers no impediment to small steamers of light draught. It thus forms a valuable and direct communication between the vast water areas which it links together. It flows through a flat and swampy country, offering very few inducements, or indeed opportunities for settlement. The Mission of Fairford is situated on that part of this river which lies between St. Martin's Lake and Lake Manitobah, having been removed to its present position from the lower part of Dauphin River in consequence of the occurrence of destructive floods, the surface of the country not being above eight feet over the summer level of the river. Dauphin Lake is connected with Lake Winnipegosis by Moss River, navigable in high water by Red River freighters' boats. The tributaries received by Dauphin Lake scarcely require notice here, although they may become useful as affording means for transporting the valuable spruce of the Riding and Duck Mountain to Lake Manitobah. The most important of these tributaries is the Valley River, which separates the Duck from the Riding Mountain.

Lake Winnipegosis receives the Red Deer River and Swan River, which open communication to an important tract of country east and north-east of the head waters of the Assinniboine. The southwestern extremity of Lake Manitobah is distinguished by the extent and richness of the prairies, which at a higher lake level it has assisted in forming. The White Mud River, which meanders through them, may be classed among the most valuable of the lesser tributaries of the Great Lakes of the Winnipeg basin.

At its southern extremity Lake Winnipeg receives the Red River of the north, which, together with its important affluent, the Assinniboine, unwaters an area of extraordinary fertility and extent, already partially described in my report on the Red River Expedition in 1857.

The Assinniboine joins Red River in latitude  $49^{\circ} 54'$ . At the confluence of these rivers Fort Garry is situated. It rises in latitude  $51^{\circ} 40'$ , and pursues a south-easterly course for a distance of about 260 miles parallel to the basins of the Great Lakes on the east of the Riding and Duck Mountains. Within 18 miles south of the 50th parallel it takes a sudden bend to the east, which direction is preserved until it falls into Red River, a distance of about 240 miles from the great bend at Lane's Post. Twenty-two miles from Fort Garry the Assinniboine is 120 feet broad (June 28, 1858), with a mean sectional depth of 6 feet. Its greatest depth here is  $7\frac{1}{2}$  feet, and the rate of its current is  $1\frac{1}{2}$  miles an hour. Near Prairie Portage, 67 miles from Fort Garry, the speed of the current is two miles an hour, and its fall, as ascertained by levelling, is 1.18 feet in a mile. At its junction with the Little Souris, an affluent which it receives 140 miles from its mouth, the breadth of the river is 230 feet, its greatest depth 12 feet, and its mean sectional depth 8.6, the speed of its current being  $1\frac{1}{4}$  miles an hour. It thus appears that this river is considerably larger 140 miles from its outlet than 22 miles from the same place. Even at Fort Ellice, 280 miles from its junction with Red River, the Assinniboine is 135 feet wide, 11.9 feet deep in the channel, with a mean sectional depth of 8 feet, and a current flowing at the rate of  $1\frac{3}{4}$  miles an hour; in other words, this river, 280 miles from its mouth, carries a larger body of water than at a point 22 miles from it.

The following table shows the quantity of water which the Assinniboine carries at three different points, distant respectively in round numbers 22 miles, 140 miles, and 280 miles from its outlet by the windings of the river valley, but not by the windings of the river itself, which will be at least double the length of the river valley.

*Volume of Water in the Assinniboine.*

	Cubic Feet per Hour.	Distance from Outlet at Fort Garry.
Lane's Post - - -	5,702,400	22 miles.
Mouth of Little Souris - -	12,899,040	140 „
Opposite Fort Ellice - - -	9,979,200	280 „

It thus appears that the volume of water in the Assinniboine is nearly twice as large at Fort Ellice as 258 miles lower down the river, if the foregoing table affords sufficient data on which to rest an opinion. It is very probable that the character of the season would modify these results in different years. The measurements were not made simultaneously, and the rainfall in the neighbourhood of the Touchwood Hills and in the region about Fort Pelly was represented to be more in the extreme than is usual during the summer months. But judging from the appearance of the river bank, and the statements of Indians and half-breeds familiar with the summer level at the localities where the sections were made, there is no reason to suppose that its waters were in excess of their ordinary summer level. It is therefore very probable that evaporation during a long and tortuous course through an open valley is adequate to diminish the volume of water in the Assinniboine very much in excess of the supply which it receives from tributaries or springs during its course to Red River.

East of Prairie Portage the Assinniboine flows through a flat, open, prairie country, not 16 feet below its general level where it is cut by the stream. The whole country rising in steps above or west of the Portage, the Assinniboine has excavated a deep broad valley in which it meanders with a rapid current.

At the mouth of the Little Souris or Mouse River, this valley is 880 yards across, and 83 feet below the general level of the prairie. At Fort Ellice its valley is 1 mile and 30 chains broad, and 240 feet below the prairie.

The Assinniboine receives numerous and important affluents. On its eastern water-shed are the Two Creeks, Pine Creek, Shell River, Birdstail River, and Rapid River or the Little Saskatchewan. The distances of the rivers from Fort Pelly, which may be considered as lying at the head of the

bateau navigation of the Assiniboine, will be noticed hereafter when the country they drain is described. From its western water-shed it receives the White Sand River from the Touchwood Hills; the Qu'Appelle or Calling River, inosculating with the south branch of the Saskatchewan; Beaver Creek, a small rivulet on which Fort Ellice is situated; and the Little Souris or Mouse River, from the Grand Coteau de Missouri. The Crees of the Sandy Hills on the South Branch state that Elbow Bone Creek, an affluent of the Qu'Appelle River, inosculates by a deep valley with the Mouse River, or an arm of it, and is connected continuously with the Assiniboine, winding round the northern flank of the Grand Coteau de Missouri.

The Qu'Appelle or Calling River falls into the Assiniboine about five miles below Fort Ellice. At its mouth this stream is 88 feet broad, 12 feet deep in the main channel, and shows a mean sectional depth of eight feet; its current is at the rate of  $1\frac{1}{2}$  miles an hour. The valley in which it flows inosculates with the South Branch of the Saskatchewan at the Elbow. It is 270 miles long, and 70 miles from the Assiniboine about one mile broad (78 chains), and 310 feet below the prairie, which stretches north and south from its abrupt edges as far as the eye can reach. At the Qu'Appelle Mission, 119 miles from the Assiniboine, the valley is  $1\frac{1}{4}$  miles broad and 250 feet deep. The river here is 48 feet wide, six feet deep in the channel, with a mean sectional depth of three feet six inches, and a current of one mile an hour. The lakes at this point have a depth of 57 feet, so that the total excavation below the prairie on either hand is 307 feet.

Near the first or Qu'Appelle Forks the valley is one mile and one-third broad, and 220 feet deep. At the east end of Sand Hill Lake, 239 miles from the Assiniboine and 31 miles from the South Branch, the valley is one mile and five chains broad, with a depth of 140 feet below the prairie. Eight miles from the west end of Sand Hill Lake, or 15 miles from the Saskatchewan, the valley is one mile and 70 chains broad and 150 feet deep. At the Height of Land where it has been invaded by sand dunes from the west and south-west, it is still nearly one mile broad (73 chains), and 110 feet deep, estimated from the well-defined edge of the valley, where a low escarpment of rock, still uncovered by the advancing sand of the dunes, serves to mark its limit and the power of the forces which excavated it. The level of the prairie dotted with sand hills and dunes is some 30 feet above the edge of the rock noticed above.

The Little Souris or Mouse River joins the Assiniboine 140 miles from Fort Garry, by the windings of the river valley, and 116 by the buffalo hunter's trail. At its mouth the Little Souris is 121 feet broad, three feet six inches deep in the channel, with a mean sectional depth of two feet four inches, and a current of half a mile an hour. Its valley, at the Back-fat Creek, 25 miles from the Assiniboine, is one mile and a half broad (8,016 feet), and 225 feet deep, with a level prairie on either hand. Near Snake Hill, 61 miles from the outlet, the valley is only 110 yards broad, and 66 feet deep, with open prairie on both sides. The river here is 100 feet broad, and four feet deep in the channel. At this spot several beaches of a former lake were exposed in making a cutting in the bank, with a view to ascertain the nature and extent of the deposits of Tertiary coal or Lignite which the occurrence of numerous water-worn masses of that material in the bed of the river and on its banks appeared to indicate. In its passage through the Blue Hills of the Souris, the river has excavated a ravine or valley between 400 and 500 feet deep, making a sudden turn from a due easterly course to one almost northerly, and avoiding what appears to be an ancient channel but slightly elevated above its present level. This old channel pursues a straight course to Pembina River, with which, on the authority of half-breeds familiar with the country, it is said to be connected. The length of the Little Souris, within British territory, is 106 miles. A short distance south of the boundary line it receives the Red Deer's Head River, a small stream about 18 feet broad, within a few hundred yards of its junction with the Souris.

#### WOODED AND PRAIRIE LAND.

The western and south-western slopes of the Riding and Duck Mountains support heavy forests of white spruce, birch, aspen, and poplar. The trees are of a large size, and often exceed  $1\frac{1}{2}$  and 2 feet in diameter, with an available length of 30 to 50 feet. On the summit plateau of the Riding Mountain the white spruce is the largest tree; here it attains dimensions, and is found in quantity sufficient to give to this region a great economic value. The wooded area over which timber consisting of the four kinds of trees enumerated, is found on the Riding and Duck Mountains, has a length of 120 miles, with a breadth exceeding 30 miles. The affluents of the Assiniboine will serve during spring freshets to bear these valuable forest productions to areas which will probably first attract settlement, and where they will be most required.

In the valley of the Assiniboine is an extensive and valuable forest of oak, elm, ash, maple, poplar, and aspen, with an average breadth of four miles; its length is about 30 miles. The flats and hill sides of the deep eroded valley through which this river flows above Prairie Portage sustain a fine forest, in which aspen, oak, birch, elm, and maple appear to prevail in numbers corresponding with the order in which they are enumerated; but this forest does not extend beyond the excavated valley of the river or its tributaries. All the affluents of the Assiniboine flow through deep ravines, which they have cut in the great plain they drain; these narrow, deep valleys are well clothed with timber, consisting chiefly of aspen and balsam poplar, but often varied with bottoms of oak, elm, ash, and the ash-leaved maple. On the west side of the main river, the valleys of the tributaries, such as the Little Souris and the Qu'Appelle River, are timbered continuously for a distance of 30 to 70 miles from their outlets, and at intervals further up stream. On the Qu'Appelle River good timber is found as far as the Mission; but in progressing westward it is seen gradually to diminish in size, and finally to disappear altogether.

The Touchwood Hill Range, together with small parallel ranges, such as the Pheasant Mountain and the File Hill, averaging 20 miles in length by 10 in breadth, are in great part covered with aspen



forests, but the trees are generally small. At the Moose Woods, on the south branch of the Saskatchewan, forests of aspen begin to appear; they continue, with occasional admixtures of birch and oak, more rarely of oak and elm, as far as the Grand Forks; here the spruce becomes common, and, with aspens, occupies the excavated valley of the Main Saskatchewan for many miles. The hill-bank, with the plateau on the south side of the river, for a distance of three or four miles south, sustain the bank-sian pine, which disappears as the soil changes from a light sand to a rich and deep vegetable mould, supporting detached groves of aspen and clumps of willows.

On the Little Souris, especially in the neighbourhood of the Blue Hills, the country is fertile and beautiful, but the areas adapted for settlement lose much of the value which would otherwise belong to them from the absence of wood. West of the Souris is a boundless, treeless prairie, so that in crossing from Red Deer's Head river to fort Ellice it was found necessary to carry wood for fuel for a distance of 60 miles. This prairie extends to the South Branch and beyond it. At Sand Hill Lake, on the Qu'Appelle, timber is so scarce in the river valley and gullies leading to it, that we were compelled to use the bois de vache for fuel. The South Branch, from the Elbow to the Moose Woods, flows through a treeless region, as far as relates to the prairie on either side; but in the ravines leading to the river detached groves of small timber occur. The boundary of the prairie country, properly so called, may be roughly shown by a line drawn from the great bend of the Little Souris, or Mouse River, to the Qu'Appelle Mission, and from the Mission to the Moose Woods, on the South Branch. South and west of this imaginary line, the country, as a whole, must be ranked as a level or slightly undulating, treeless plain, with a light and sometimes drifting soil, occasionally blown up into dunes, and not, in its present condition, fitted for the permanent habitation of civilized man; the narrow valleys of the streams which drain it, such as Plum Creek, Moose Jaws Creek, as well as some low valleys of comparatively limited area being excepted. There can be no doubt that, if the annual fires which devastate these prairies were to cease, trees would rapidly cover them in most places. Everywhere young aspen and willows show themselves in groves where "fire" has not "run" for two or three seasons. A few years of repose would convert vast wastes, now treeless and barren, into beautiful and fertile areas. East and north of this dry prairie region there is a large expanse of cultivable land, which I now proceed to describe more in detail.

#### AREAS FIT FOR SETTLEMENT.

##### *Valley of the Assinniboine.*

Issuing from the Duck Mountain are numerous streams which meander through a beautiful and fertile country. This area may be said to commence at the Two Creeks, 10 miles from Fort Pelly, thence on to Pine Creek, 15 miles further. The vegetation is everywhere luxuriant and beautiful, from the great abundance of rose-bushes, vetches, and gaudy wild flowers of many species. After passing Pine Creek the trail to Shell River pursues a circuitous route through a country of equal richness and fertility. Shell River is 42 miles from Pine Creek, and in its valley small oak appear, with balsam, poplar, and aspen, covering a thick undergrowth of raspberry, currant, roses, and dogwood. Between Shell River and Birdtail River, a distance of 39 miles, the country is level and often marshy, with numerous ponds and small lakes, but where the soil is dry the herbage is very luxuriant, and groves of aspen, 30 feet high, vary the monotony of the plain.

Between the trail and the Assinniboine the soil is light, and almost invariably as the river is approached it partakes of a sandy and gravelly nature, with boulders strewn over its surface.

The flanks of the Riding Mountain are covered with a dense growth of aspen and poplar, and cut by numerous small rivulets. From Birdtail River to the Little Saskatchewan, or Rapid River, a distance of 33 miles, the same kind of soil, timber, and vegetation prevail. About 100 miles from its mouth the Rapid River issues from the densely wooded flanks of the Riding Mountain through a narrow excavated valley filled with balsam poplar, and an undergrowth of cherry and dogwood, with roses, convolvuli, vetches, and various creepers. The slopes are covered with poplar 18 inches in diameter. Descending the river, groves of poplar and spruce show themselves, with thick forests of aspen and balsam poplar covering the plateau on either hand. The river is here 40 feet wide, with a very rapid current. Before it makes its easterly bend the ash-leaved maple shows itself in groves, and on both sides is an open undulating country, attractive and fertile, with detached clumps of young trees springing up in all directions. The region drained by the Rapid River continues beautiful and rich until within 25 miles of the Assinniboine, so that it may with propriety be stated, that for a distance of 75 miles this river meanders through a country admirably adapted for settlement. Ponds and lakes are numerous, wild fowl in great numbers breed on their borders, and the waters of the Rapid River abound in fish. Canoes and bateaux may descend it from the point where the exploration terminated to its mouth, a distance of 100 miles. It will probably become important as a means of conveying to the settlements on the Assinniboine and Red River supplies of lumber from its valley and the Riding Mountain.

From the Rapid River to White Mud River the distance is 33 miles, and the country continues to preserve the same general character with respect to fertility and fitness for settlement which has now been traced out for a space of 164 miles. White Mud River flows into Lake Manitobah, at its southwestern extremity. This river unwaters an extensive area of the richest prairie land, similar in all respects to the White Horse Plains on the Assinniboine, or the rich wastes on Red River. White Mud River is connected with Prairie Portage by an excellent dry road, the crossing place being about 18 miles from the Portage. The river banks are well timbered with oak, elm, ash, maple, aspen, and balsam poplar. It possesses valuable fisheries, and communicates by an uninterrupted canoe navigation with Lake Manitobah for a length of 30 miles. The soil on its banks, and far on either side, is of the finest quality. At the mouth of the river a fishing establishment has been maintained by the people of the Portage for several years.

The valley of La Rivière Salé has a general direction parallel to that of the Assiniboine, and about 16 miles south of it. The country between the two rivers is wet and marshy, with large areas covered with willow thickets and clumps of small aspen. South of the valley of the first named river, the prairie is magnificent and not surpassed by any area of equal extent on Red River.

The area of the region well adapted for settlement on the east and north of the Assiniboine, and in the valley of La Rivière Salé, may be assumed fully equal to 3,500,000 acres. In the valleys of Mouse River, the Qu'Appelle River, and White Sand River, the area of land likely to invite settlement does not exceed one million acres. The lakes in the valley of the Qu'Appelle River are important, they abound in fish, among which white fish are numerous, large in size and of excellent quality; the grey and red suckers, pike and pickerel, are also abundant.

*Valley of the Saskatchewan.*

1. The country between the Lumpy Hill of the Woods and Fort à la Corne, or the Nepoween Mission, including the valley of Long Creek and the region west of it, bounded by the South Branch and the Main Saskatchewan. This area may contain about 600,000 acres of land of the first quality.

2. The valley of Carrot River, and the country included between it and the Main Saskatchewan, bounded on the south by the Birch Hill range. There is a narrow stripe on the great river, about five miles broad, where the soil is light and of an indifferent quality. The area of available arable land probably does not exceed 3,000,000 acres.

3. The country about the Moose Woods on the South Branch.

4. The Touchwood Hill range.

5. The Pheasant Hill and the File Hill.

The aggregate area of these fertile districts may be stated to extend over 500,000 acres.

If we assume that the prairies of Red River and the Assiniboine east of Prairie Portage, contain an available area of 1,500,000 acres of fertile soil, the total quantity of arable land included between Red River and the Moose Woods on the South Branch of the Saskatchewan will be as follows:

	ACRES.
Red River and the Assiniboine Prairies east of Prairie Portage -	1,500,000
Eastern water-shed of the Assiniboine and La Rivière Salé -	3,500,000
Long Creek and the Forks of the Saskatchewan -	600,000
Between Carrot River and the Main Saskatchewan -	3,000,000
The Touchwood Hill range, the Moose Woods, &c., &c. -	500,000
Little Souris or Mouse River, Qu'Appelle River, White Sand River -	1,000,000
The region about the head-waters of the Assiniboine, including the valley of Swan River -	1,000,000

Total area of arable land of first quality - 11,100,000  
or eleven million, one hundred thousand acres.

Of land fit for grazing purposes, the area is much more considerable, and may with propriety be assumed as fully equal in extent to the above estimate of the area of arable land.

*East of the Riding and Duck Mountains.*

In a former Report I have shown that the country east of the Riding and Duck Mountains when taken as a whole will furnish a very insignificant field for settlement and civilization. Where the soil is dry, the limestone rock approaches in general so near to the surface, as to be exposed whenever small trees are blown down or the soil is penetrated to the depth of six or eight inches. With respect to the greater portion of the area I visited on the shores of Lake Winnipeg, Lake Manitobah, the Little Saskatchewan, Moss River, Dauphin Lake, and St. Martin's Lake, together with the region between Lakes Winnipeg and Manitobah, always excepting the southern shore of the latter lake, I am of opinion that it is not generally fitted for settlement. In my Report from Red River, dated November 8th, I have described more at length the natural features of a large portion of this region from practical information obtained during a journey on foot exceeding 100 miles in length, from the summit of the Riding Mountain to Manitobah House, on Lake Manitobah.

GEOLOGICAL FEATURES.

During an exploration extended over half a year, and embracing a very wide area of country, numerous rock specimens and specimens of organic remains, have been collected. Most of these were brought to the Red River settlements at too late a period to admit of their being taken to St. Paul before the spring of 1859. By far the larger portion of the collection I have made is still at Red River. I shall, therefore, confine myself at present to a very general outline of the geological features of the country.

The most striking peculiarity in the arrangement of the different formations, from Red River to the South Branch, and from the 49th parallel to the Main Saskatchewan, is their undisturbed and horizontal condition. With two or three exceptions to be noticed hereafter, no appearance of local disturbance was observed throughout the whole region traversed. The rocks dip, generally with a very gentle inclination from the north-east to the south-west. Sometimes it is not only impossible to detect any dip by the eye, but the level fails to show the smallest deviation from perfect horizontality. The result of very careful levelling on the Little Souris failed in one instance to show any dip. The same observation applies to some exposures on Lake Winnipeg and Lake Manitobah. Lake Winnipeg is excavated in Silurian formations; Lake Manitobah and Winnipegosis



partly in Silurian and partly in rocks of Devonian age. Fossils were collected in numerous localities on the east coast of Lake Winnipeg, and on the islands of Lake Manitobah and Winnipegosis. From the Saskatchewan at the Grand Rapids to Red River, exposures of Silurian rocks are everywhere numerous on the west shores of the Great Lake. About forty miles due south of Snake Island, in Winnipegosis Lake, there are exposures of a light ash-colored shale, exactly similar, in its lithological aspect, to those on the Little Souris, and a small tributary of the Rapid River. They occur at an altitude of 400 to 600 feet above Dauphin Lake. The country between these exposures and Lake Manitobah, as well as in a direction south-east to Red River, is nearly horizontal, and all rock exposures seen were in an undisturbed condition. The ash-coloured shale is undoubtedly of Cretaceous age, and is a continuation of the horizontal beds on the Little Souris, holding *Inoceramus* in great abundance, and of large size.

On the Little Souris the Cretaceous rocks are exposed for a distance of 50 miles. They are loaded with nodules and concretions, holding abundance of carbonate and oxide of iron. The Blue Hills south of the Assiniboine are covered with the debris of this rock. It appears 10 feet below the level of the Prairie, at the mouth of the first of the two creeks below Fort Ellice, affluents of the Assiniboine. It is also seen on a small tributary of the Rapid River, and in several places on the Qu'Appelle, east of the Mission, and on the east flank of the Riding Mountain. In a former report I have mentioned that brine-yielding springs occur from Swan River to La Rivière Salée, a distance of 230 miles. Whether the salt-bearing rocks belong to recognized members of Devonian age is a question yet undetermined; but as the whole of the fossils which I have collected will be submitted, when they arrive, to Mr. Billings, the palæontologist of the Canadian Geological Survey, their precise position will then be determined. It is sufficient at present to state that salt springs occur on the east flank of Dauphin Lake, within 10 miles of the outcrop of the Cretaceous rocks on the flanks of the Riding Mountain, which leads to the inference that the Carboniferous group is totally wanting in the region where it might be supposed to exist, between Lakes Manitobah and Winnipegosis, and the range of high land forming the eastern water-shed of the Assiniboine.

On the Qu'Appelle, sixteen miles from the South Branch of the Saskatchewan, a greenish coloured arenaceous rock occurs, destitute of fossils, but intersected with veins of selenite, and holding a large number of concretionary masses. Many of these concretions have fallen into the bed of the river, or are exposed in its banks, where the Qu'Appelle comes from the Eyebrow Hills and enters the Great Valley. Many concretions in the rock referred to were three, four, and five feet in diameter, very hard, and when broken with a sledge hammer, portions often "peeled" off like the coats of an onion. The selenite generally occurs in fragmentary portions about six inches long, but the veins are easily traced for many feet, most commonly in a vertical direction. In an admirable paper on the Cretaceous strata of the United States, by the distinguished palæontologist of the New York State Geological Survey, James Hall, Esq., reference is made to the report of Mr. Nicollet on the Cretaceous formations of the upper Missouri. In section C of Mr. Nicollet's subdivision of the rocks of that region, the formation is described as "a ferruginous sand of a yellowish colour, containing "masses resembling septaria and seams of selenite." On the South Branch, a few miles north-west of the "River that turns," there is an extensive exposure of a yellowish ferruginous sand, holding septaria and concretions, with seams of selenite. The rock is Cretaceous, and I think it probable that it is identical with formation C of Mr. Nicollet. If so, it constitutes one of the uppermost members of the Cretaceous system; and the coal in situ, noticed in a former report as occurring about 80 miles south-west of the Qu'Appelle or Calling Mission, will most probably be of Tertiary age. I think, however, that the fossils collected on the Saskatchewan, and throughout the entire region explored, will be amply sufficient to establish the true position of the rock formations over the greater part of the country visited. It is sufficient for present purposes to mention that the addition which has been made to our geological knowledge of this country may be thus briefly stated:—

1. The eastern flanks of the Riding and Duck Mountains as far as the Pasquia Hill form the present eastern limits of the Cretaceous rocks of this region.

2. The Cretaceous rocks occupy the whole of the country from the Riding and Duck Mountains and Pasquia Hill to the South Branch of the Saskatchewan.

3. The Cretaceous rocks are seen in situ, undisturbed and nearly horizontal, at an altitude not exceeding 400 to 600\* feet above rock of Devonian age, recognized in situ 30 miles to the east.

4. Brine springs, similar in all respects to the brine springs issuing from Devonian rocks in situ, occur within 10 miles east and north-east of the outcrop of the Cretaceous rocks on the east flank of the Riding Mountain.

5. The Riding Mountain in its former extension probably covered the area now occupied by the great lakes, from which it has been removed by denudation.

6. The Cretaceous rocks probably repose on the brine-bearing rocks of Devonian age on the flanks and east of the Riding Mountain, and as far north as the Pasquia Hill.

7. It is not probable that any outcrop of the Carboniferous rocks will be found to exist in the eastern part of the valley of the Saskatchewan. The lignite or coal of the Souris appears to be of Tertiary age.

With reference to the Lignite on the Little Souris, it may be here stated that a very careful search was made for it in position, but without success. A cutting into the bank just above where a fine exposure of Cretaceous rocks occurs, holding *Inoceramus* from four to nine inches in length, showed

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\* The section exposed on the flanks of the Riding Mountain was on the side of a gully 200 feet deep. The exposure was traced from top to bottom. The bottom of the gully is about 400 feet above Dauphin Lake, and 420 feet above the last exposure of limestone seen on Moss River.

no less than five distinct beaches, in each of which numerous water-worn masses of Lignite, from three inches to one foot in diameter, were discovered. In several places the accumulation of lignite boulders was very extensive, and might become of economic value. But in no instance was the Lignite observed in place on the Souris. The boulders were generally found in a highly ferruginous sand; when burned they emitted a strong sulphurous odour, showing the presence of iron pyrites. The "grain" of the wood could be perceived with the greatest ease when large masses were broken open, and not unfrequently particles and strings of amber were found in the interior. The specimens I have brought to Toronto have cracked on becoming dry in many directions; they will, however, serve to illustrate the character of the singular accumulation of boulder lignite in the valley of the Little Souris.

Until I have had an opportunity of submitting my collection of fossils, illustrating the rock formations of the country, to Sir William Logan and Mr. Billings, I refrain from giving expression to any further views respecting the geological features of the region explored. I think I am in possession of sufficient materials upon which a tolerably accurate geological map of the country from the Great Lakes to the South Branch of the Saskatchewan can be constructed. But as this is a work involving much cautious inquiry, and the co-operation of gentlemen thoroughly acquainted with the fossils of the secondary rocks, some months must elapse before a geological map can be prepared.

#### CLIMATE.

In a communication, dated 2nd February, "On the Qu'Appelle or Calling River Valley," I introduced some remarks on the climate or rather seasons of the South Branch, in comparison with the North Branch at the Forks and Fort à la Corne. The impression conveyed by the progress of vegetation in these far separated parts of the country led to the opinion that the period of flowering and of ripening fruit on the South Branch at the Elbow was two or three weeks in advance of similar periods on the North Branch. The vegetable productions in the gardens attached to Fort à la Corne, with a brief notice of the periods of planting and gathering, will show that the climatic adaptation of the North Branch near the Grand Forks is not of a character unfavourable to agricultural operations. As this subject is one of great importance I have ventured to introduce some extracts from the journal of the Fort, which are both interesting and valuable.

On the 7th August, in the garden attached to Fort à la Corne (about 18 miles below the Grand Forks), potatoes were in flower, and the tubers of early varieties of the size of hen's eggs. Cabbages were well formed. Beet roots and carrots quite ready for the kitchen. Indian corn in silk, from seed which was grown in the garden last year. Peas ready for gathering.

No disease has yet been noticed in the potatoes; and the grasshoppers, that scourge of the country south of the Touchwood Hills, have not made their appearance at Fort à la Corne.

In the garden attached to the Nepoween Mission, under the charge of the Rev. Henry Budd (a zealous missionary of native origin), all the vegetables gave promise of fair and remunerative crops. The potatoes were superb; turnips, both Swedes and white, remarkably fine; Indian corn, from seed grown on the spot last year, in silk; wheat rather too rank in the stalk—it measured 5 ft. 3 in. in length to the ear, which was well formed but green, and it seemed doubtful whether it would ripen. Mr. Budd speaks very favourably of the soil, climate, and extent of land available for agricultural purposes. Both the mission and the fort are situated within the excavated valley of the Saskatchewan, and are not, in my opinion, so favourably placed for farming purposes as they might be in the valley of Long Creek. The river, however, is the great highway, and during the season, affords an abundant supply of sturgeon.

*Extracts from the Journal at Fort à la Corne, Saskatchewan River. Lat. 53° 29' ; long. 104° 30' W.*

1851.

Oct. 25. Ice made its appearance in the river.

1852.

April 8. Ice solid for the season of the year.

„ 12. Ice started.

„ 13. Ice drifting and lodging on the banks.

„ 21. Ice drifting and disappearing along the banks.

„ 22. Garden operations commenced.

May 14. First sturgeon caught.

„ 24. Planted potatoes.

Oct. 11. Finished taking up potatoes.

„ 25. Fishing season ended.

„ 26. Snow.

Nov. 8. Ice floating in the river.

1854.

April 14. River broke up. On the 15th nearly clear of ice.

„ 28. Garden operations commenced.

May 1. First sturgeon caught.

„ 8. Preparing potatoe field.

„ 13. Potatoe planting.



1854.

- Oct. 2. Gathered turnips.
- „ 3. Taking up carrots.
- „ 10. Commenced taking up potatoes at the mission (190 kegs), turnips, carrots, cabbages—large and good.
- „ 11. Cabbages taken up.

1855.

- May 24. Turnips sown.
- Sept. 12. Hard frost over night.
- „ 27. Took up potatoes—poor crop, much destroyed by grubs.
- „ 29. Hard frost. A little ice seen at the gates.
- Oct. 1. Women digging potatoes.
- „ 2. Do. do. do.
- „ 3. Taking up turnips.
- „ 22. Ice on the edges of river.

1856.

- April 2. Hard frost last night.
- „ 4. Water making its appearance on the edges of the river.
- „ 7. Froze hard last night.
- „ 9. Ice made a start.
- „ 17. Ice drifting.
- „ 23. Fall of snow during the night.
- „ 23. Nets set. One sturgeon caught.
- „ 25. Hard frost.
- May 2. Garden operations commenced.
- „ 10. Storm of snow.
- „ 12. Planted potatoes.
- „ 14. Sowed Swedes.
- Sept. 16. Slight frost last night.
- Oct. 2. Commenced taking up potatoes.
- „ 22. Hard frost during night.
- „ 23. Severe frost during night.
- „ 26. Snow in night.
- Nov. 11. River full of ice.

1857.

- April 9. Water appearing on the edges of the river. Snow shoes required everywhere.
- „ 16. Ice started to-day.
- „ 24. Snowed without intermission the whole day.
- May 3. Ice drifting all last night.
- „ 5. River full of ice.
- „ 12. Planted potatoes and onions.
- „ 20. Planting potatoes. Three sturgeons caught.
- June 2. Hard frost last night.
- „ 30. Starvation is staring the people in the face. Have caught no sturgeon for some time back.\*

1858.

- April 21. Ice drifting. Large quantities of ice on the banks.
- May 1. Clearing up of north garden.
- „ 7. Preparing potatoe ground. First sturgeon caught.
- „ 12. Planted potatoes.
- „ 17. Slight fall of snow.
- „ 18. Wind from N. and cold. Think we are going to have a second winter.

In the General Report of the Expedition, which is already well advanced, I shall have an opportunity of describing not only the topographical and geological features of the country in detail, but also the habits and customs of the Indian tribes with whom we came in contact; the condition and prospects of the Missionary Stations; the Forts and Posts of the Hon. Hudson's Bay Company; the character and influence of the fur trade; the history and progress of the devastating host of grasshoppers, which we traced for more than 600 miles in the prairie region, &c., &c., &c.

I have much pleasure in having this opportunity of expressing my warmest thanks to Sir George Simpson, not only for the letters of introduction with which he favoured me to the officers of the Hon. Hudson's Bay Company's service in Rupert's Land, but also for his personal efforts when at Fort Garry, to facilitate the progress of the expedition by every means in his power. The assistance rendered by Sir George Simpson was of the greatest use to me, and the kind and courteous manner in which it was granted increases my indebtedness to him.

From the officers of the Hon. Hudson's Bay Company's service in charge of the different posts I

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\* A common record in the journals at the different posts in Rupert's Land. The cause must be referred to the habits of the people, their occupation, &c., and not to the capabilities of the country.—H. Y. H.

received, without any exception, kind attention and valuable assistance. To Mr. McTavish, Chief Factor, in charge of Fort Garry; Mr. Lillie, of the Stone Fort; Mr. Sinclair, Chief Factor, then in charge of Fort Alexander; Mr. McKenzie, of Manitobah House; Mr. McKenzie, of Pembina; the gentlemen in temporary charge at the Touchwood Hills, Fort Ellice, Fort Pelly, Fort à la Corne, and Cumberland House; I beg to express my grateful thanks. I shall elsewhere have an opportunity of recording many friendly acts, which would be out of place in a preliminary report.

The aggregate distance travelled by the Expedition in the region marked out for exploration, was as follows:—

On horseback	-	-	-	-	-	2,392 miles.
In small canoes	-	-	-	-	-	1,263 „
In freighters' boat	-	-	-	-	-	685 „
On foot	-	-	-	-	-	111 „
Aggregate distance						4,451 miles.

In journeying to Red River, where the exploration commenced, the route followed was by the Great Western Railway to Detroit; thence by steamboat to the Grand Portage, Lake Superior. From Grand Portage the voyage to Red River was made in north canoes, a distance of 636 miles. Returning, we travelled in dog carriages from Fort Garry to Crow Wing, a distance of 410 miles, by the winter road; thence by stage to La Crosse, on the Mississippi; and from La Crosse to Toronto by rail.

I have, &c.  
(Signed) HENRY Y. HIND.

The Hon. Charles Alleyne, M.P.P., Provincial Secretary.

TABLE showing the DIMENSIONS of VALLEYS and RIVERS.

Name and Place.	Width.	Depth.		Rate of Current.	Remarks.
		Greatest.	Mean.		
Red River, Middle Settlement	Feet. 480	Feet. 18	Feet. 12	mil.p.hr. 1½	
Assiniboine River, Lane's Post	120	7·6	6	1½	
" " Prairie Portage	-	-	-	2	Falls 1·18 feet per mile.*
" Valley, Junction with Little Souris	2,550	-	83	-	The depth below the prairie applies to the North Bank of the river only, the slope on South being very gradual.
" River	230	12	8·6	1½	
" Valley, at Fort Ellice	1 m. 30 ch. Feet.	-	240	-	
" River	136	11·9	8	1½	
Little Souris River, at its mouth	121	3·6	2·4	½	
" " Valley, at Back-fat, or Mussel Creek	8,016	-	255	-	
" " near Snake Hill	330	-	66	-	This depth applies to the west side only, east side rises very gradually to about same level. Lignite 45' above river.
" " River, at Snake Hill	100	4	-	-	
Qu'Appelle Valley, 70 miles from Assiniboine	78 chains	-	310	-	
" " at Mission	1 m. 20 ch.	-	250	-	
" " near Grand Forks	1 m. 30 ch.	-	220	-	
" " each end of Sandhill Lake	1 m. 5 ch.	-	140	-	
" " eight miles from west of Sandhill Lake.	1 m. 70 ch.	-	150	-	
" " between Height of Land and Saskatchewan.	73 chains Feet.	-	110	-	
" River, at its mouth	88	12	8	1½	
" " two miles from mouth	66	7·6	6·6	1½	
" " at Mission	48	6	3·6	1	Falls 0·56 feet (7 inches) per mile.*
Saskatchewan, South Branch, (28 miles from Qu'Appelle Valley).	1,848	10	4·6	2½	Channels on both sides 6 to 10 feet deep.
" Main River, Fort à la Corne	967	20	14	3	
" near Tearing River	980	22	20	2	Falls 0·16 feet (2 inches) per mile.*

\* Fall determined by the level.



## GENERAL REPORT AND NARRATIVE OF THE EXPEDITION

## CHAPTER I.

## FORT GARRY TO THE MOUTH OF THE LITTLE SOURIS RIVER.—THE MOUTH OF THE LITTLE SOURIS TO THE BOUNDARY LINE.

The Start—Supplies—Prairie Ridges—The Big Ridge—Pigeon Traps—Stony Mountain—Birds—Saline Efflorescence—Character of the Big Ridge—The Assinniboine—Grasshoppers—Ojibway Encampment—Archdeacon Cochrane—Prairie Portage—Clift Swallow—Thunder Storms—Ojibways—The Bad Woods—Assinniboine Forest—River—Rabbits—Sandy Hills of the Assinniboine—Latitude—Dimensions of Valley—Variation of Compass—Sand Dunes—Aspect of Country—Hail Storm—Balsam Spruce—Pine Creek—The Little Souris—Grasshoppers—Fish—Sioux—Cretaceous Rocks—Blue Hills—Pembina River—Backfat Lakes—Vast Prairie—Prairie Fires—Horizontal Rocks—Inoceramus—Guelder Rose—Lignite—Ancient Lake Beaches—Sand Dunes—Oak Lake—Souris Sand Hills—Nighthawk—Bog Iron Ore—Floods in 1852—Grasshoppers, Infinite multitude of—Appearance of the Sky, of Prairie—Little Souris Valley—Tracts—Turtle Mountain—Sioux—Character of Prairie—Souris Lakes—Boulders—Mandan Village—Character of the Souris south of the 49th Parallel.

On the morning of the 14th June 1858, the half-breeds engaged for the expedition into the Prairie country west of Red River, assembled at our temporary quarters in the settlement, and began at once to load five Red River carts and a waggon of American manufacture, with two canoes, camp equipage, instruments, and provisions for a three months journey. At noon the start was made, and the train proceeded to Fort Garry,\* a distance of eight miles, to take in a supply of flour and pemican. We camped about half a mile from the Fort, and took an inventory of our baggage, and made such regulations and arrangements as are considered necessary at the commencement of a long journey through a country partly inhabited by hostile tribes of Indians, and not always affording a supply of food even to skilled hunters.

The whole party consisted of thirteen individuals besides myself, namely: Mr. Dickinson, surveyor, Mr. Fleming, assistant surveyor, Mr. Hime, photographer and assistant surveyor, six Cree half-breeds, a native of Red River of Scotch descent, one Blackfoot half-breed, one Ojibway half-breed, and one French Canadian. Our provisions consisted of one thousand pounds of flour, four hundred pounds of pemican, one thousand rations of Crimean vegetables, a sheep, three hams, and tea for three months, with a few luxuries, such as pickles, chocolate, a gallon of port wine, and one gallon of brandy. Each cart was loaded with about 450 lbs. weight, and the waggon with double that amount. The canoes of birch bark, 18 feet long, weighed 150 lbs. each. At the White Horse Plains, 22 miles from Fort Garry, we purchased an ox to serve as a *dernier resort* in case we should not meet with buffalo; and at Prairie Portage, the last settlement on the Assinniboine, I engaged the services of an old hunter of Cree origin, who had been from his youth familiar with Indian habits and stratagems. This addition increased the party and material, before we left the last settlement, to fifteen men, fifteen horses, six Red River carts, one waggon, and one ox.

Leaving our camp early on the morning of the 15th, we ascertained by levelling the altitude of an ancient lake ridge, near to St. James' Church, to be eleven feet above the prairie at Fort Garry, and about two miles from it. These ridges are common in the prairies of Red River, and do not necessarily point to an ancient lake margin. It is probable that most of them were formed under water. They may be traced for many miles, but are sometimes lost in the general rise of the prairie.

The ancient boundaries of Lake Winnipeg, when its waters were about 90 feet above their present altitude and occupied the whole of the country now covered by lakes Manitobah, Winnipegosis, and Winnipeg, with the intervening low land, is well defined in one direction by the Big Ridge, which on one side or another of Red River is easily traced for more than three hundred miles; it is shown on the map. On arriving at St. James' Church, we separated into two divisions, Mr. Fleming and Mr. Hime with the carts and waggon, proceeding to Lane's Post on the Assinniboine, 22 miles from Fort Garry, while Mr. Dickinson and myself, with two half-breeds, struck in a north-westerly direction across the prairie to Stony Mountain, and thence to the Big Ridge, having arranged to meet at Prairie Portage.

In a wheat field opposite St. James' Church were several pigeon traps, constructed of nets 20 feet long by 15 broad, stretched upon a frame; one side was propped up by a pole 8 feet long, so that when the birds passed under the net to pick up the grain strewed beneath, a man or boy concealed by

\* "The mean of five observations at Upper Fort Garry, at the mouth of the Assinniboine, for latitude, three meridian by altitude of the Sun and two by Polaris, gave for the latitude  $49^{\circ} 53' 24''$ . Mr. Calhoun, who was attached to Major Long's expedition in 1823, made it  $49^{\circ} 53' 35''$ , but according to a record in the possession of one of the officers of the fort, Lefroy placed it in latitude  $49^{\circ} 58'$ ." Owen's Geological Survey of Wisconsin, Iowa, and Minnesota, p. 180.

the fence withdrew the prop by a string attached to it, and the falling net sometimes succeeded in entrapping a score or more of pigeons at one fall. Near the net some dead trees are placed for the pigeons to perch on, and sometimes stuffed birds are used as decoys to attract passing flocks.

In pursuing our course to Stony Mountain we endeavoured to follow the ridge before alluded to, but after tracing it for several miles it became imperceptibly blended with the level prairie. Several ridges were crossed after we lost the first, but in all cases they died away after having preserved their rounded form for two or three miles. Stony Mountain is a limestone island of Silurian age (?), having escaped the denuding forces which excavated Red River valley. It is about four miles in circumference, its highest point is 66 feet above the prairie level. Horizontal layers of limestone, holding very few and obscure fossils, project on its western cliff like sides. Its eastern side is gently sloping, and some ten feet from the summit, the remains of an ancient lake beach is well preserved. Viewed from a distance, Stony Mountain requires little effort of the imagination to recall the time when the shallow waters of a former extension of Lake Winnipeg washed the beach on its flank, or threw up as they gradually receded, ridge after ridge over its level floor, where now are to be found wide and beautiful prairies, covered with a rich profusion of long grass.

Leaving the Stony Mountain, our course lay westerly, through a wet prairie to the Big Ridge. Gray cranes, ducks, and plover were numerous on the marshy tracts, and in every little bluff\* of aspen or willow, the beautiful rice birds were seen or heard. Where we camped on the edge of a lake near the foot of the Big Ridge, bittern, grackle, and several varieties of duck flew to and fro in alarm at our invasion of their retreats. On the flank of the Big Ridge, the Cinnamon or solitary thrush was noticed; but most common of all was the tyrant flycatcher, who endeavoured to hold undisputed sway over the bluff he had selected as his home. Near and west of Stony Mountain many small barren areas occur, covered with a saline efflorescence. They may be traced to the Assiniboine and beyond that river in a direction nearly due south to La Rivière Salé, and the 49th parallel. These saline deposits are important, as they in all probability serve, as will be shown hereafter, to denote the presence of salt bearing rocks beneath them, similar to those from which the salt springs of Swan River, Manitobah Lake, and La Rivière Salé issue.

Early on the morning of the 17th, we ascended the Big Ridge. Its elevation above the prairie is about 60 feet; on its south side it slopes gently to the prairie level, on its north side is a plateau well wooded with aspens. The view from its summit extends far and wide over the Assiniboine prairies. On the south flank, and skirting its base, are groves of aspen and balsam poplar, with scattered oak trees and willow bushes. The pasturage in the open glades is of the first quality. The ridge is quite level and about 80 to 100 feet broad, destitute of trees, slightly arched and composed of gravel, forming an excellent road. Here and there it is cut by rivulets, draining the marshes in the Plateau on its northern side. As it approaches Prairie Portage, its apparent elevation diminishes, until at the Portage River it is no longer discernible. We traced it for a distance of 70 miles. It will be mentioned further on, that this ridge or one formed at the same period, is again seen west of Manitobah Lake, near the Hudson Bay Company's post, Manitobah House. It continues to preserve there the same characters of horizontality, uniform outline, gravelly formation and admirable suitability for the purposes of a road which have been noticed in connexion with its extension north of the Assiniboine and east of Red River. For many miles ties for a railway might be laid upon it without a pebble being removed, and the only breaks in its continuity occur where streams from the Plateau and higher grounds in the rear have forced a passage through it. It follows, however, the south and western contour of Lakes Winnipeg and Manitobah, and passes through a country not likely to be first selected by a large body of settlers. It is important, in so far that it forms the boundary of land of the first quality, which occupies the low Prairie Valleys of the Assiniboine and Red River. Soundings in Lake Manitobah showed such a uniform depth of eighteen feet for a distance exceeding 60 miles along its south-eastern coast, that if its bed were exposed, it is probable that it would, in process of time, also become a rich and extensive prairie country, with its present beach, distinctly visible as its old boundary. Indeed, the aspect of this drained country for several miles beyond the Big Ridge, both on the Assiniboine and Red River, is similar to the undrained marshes, ridges, and bogs which exist on the west coast of Lake Manitobah, and points to a very gradual but constant draining of this region.

We reached Prairie Portage in the evening, where we joined the main party. The Assiniboine at Lane's Post (June 16th) is 120 feet broad; its turbid water flows at the rate of one mile and a half per hour. A few miles west of Lane's Post, the saline efflorescence, before noticed, as occurring in patches on the prairies and forming small barren areas, is no more to be seen; it consists of chloride of sodium and sulphate of magnesia, with a little chloride of calcium.

Grasshoppers were first observed at Lane's Post this year, they were the brood from the eggs deposited by a swarm which alighted on the White Horse Plains in September last. At Prairie Portage we found an Ojibway encampment in which were some of the refractory personages who had hitherto resisted the humane and unceasing efforts of Archdeacon Cochrane to Christianize them. Among the various methods tried by the Archdeacon to induce them to settle and farm, the first preliminary to the progress of Christianity among wild Indians, that of presenting the most docile with an ox and plough, and teaching them to use it, was the least successful. At the first good opportunity, or during a time of scarcity, the ox and plough would be sold to the highest bidder for very much less than it cost. A promise to add another ox at the end of a year, if the first gift was faithfully preserved, was of no avail,—the charms of the buffalo plains were too tempting or the seduction of gambling too powerful to be withstood, notwithstanding the most solemn heathen promises. The

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\* The Half-breeds call little groves of aspens or willows in the prairies "bluffs."



school, however, gives better hope, and no doubt the rising generation, both Indian and half-breed at Prairie Portage, will form a thriving, industrious and Christian community.

Prairie Portage is very delightfully situated 65 miles west of Fort Garry, on the banks of the Assinniboine. The prairie here is of the richest description, towards the north and east, boundless to the eye. The river bank is fringed with fine oak, elm, ash, and ash leaved maple; on the south side is a forest from three to six miles deep; the river abounds in sturgeon and gold eyes, and within 18 miles, there is a splendid fishing station on the coast of Lake Manitobah, where the Portage people take vast numbers of white fish every fall. The old water course of the Assinniboine, near the Portage, now a long narrow lake, fringed with tall reeds, teems with wild fowl and grackle, among which we frequently noticed and procured specimens of the yellow-headed blackbird.

Prairie Portage will become an important settlement, not only on account of the vast extent of fertile country which surrounds it, but because it lies in the track of the buffalo hunters proceeding to the Grand Coteau and the South Branch by way of the Souris River. It is also near to the fertile country unwatered by White Mud River, and the road to the south-western flanks of the Riding Mountain passes by the Portage. The current of the river is very uniform here, careful levelling showed that it fell  $1\frac{1}{10}$  inches a mile; its speed is two miles an hour. The cliff swallow (*hirundo fulca*) had built its nests in great numbers on the banks of the river, which are about 16 feet above the level of the water; I counted no less than thirteen groups of their nests within a distance of five miles, when drifting down in a canoe. The cliff swallow was afterwards seen in great numbers on the Little Souris, the South Branch of the Saskatchewan, and the Qu'Appelle River.

The first of a series of thunder storms which lasted for some weeks visited us this afternoon (17th). The warm rain fell in torrents and thoroughly wetted all who were exposed. Pigeons were flying in vast numbers across the Assinniboine, and the black tern was numerous in the prairies near the settlement. In descending the river for a few miles to inspect its banks, we had occasion to pass by a fish weir, where a number of Ojibways, from the camp near the Portage, were watching with spears in their hands for sturgeon. They took no notice of us as we passed, being too busily engaged, but on our return to the encampment we found them waiting with fish to barter for tobacco and tea. We made them a few trifling presents, and by way of recompence, sustained during the night the loss of a fine cheese, which, after curiously eyeing during supper, they had modestly asked for a morsel to taste. They found it excellent, no doubt, and quietly in the dead of night opened the basket in which it had been placed and abstracted it. In future, when Indians were around, all eatables and articles they might covet were properly secured, and the cheese proved to be our only loss during the exploration.

Leaving Prairie Portage on the morning of the 19th, we took the trail leading to the Bad Woods, a name given to a woody district about 30 miles long, by the buffalo hunters in 1852, who, in consequence of the floods of that year could not pass to their crossing place at the Grand Rapids of the Assinniboine by the Plain or Prairie Road. There were four hundred carts in the band, and the hunters were compelled to cut a road through the forest of small aspens which form the Bad Woods, to enable them to reach the high Buffalo Prairies. This labour occupied them several days, and will be long remembered in the settlements in consequence of the misery entailed on the children and women.

The trail lay for three miles through a continuation of the low prairies of the Assinniboine, until a sudden ascent of 20 to 25 feet introduced us to a different kind of country, the plateau beyond the Big Ridge, which here crosses the river, and forms the lowest or first step of the Pembina Mountain. The physical features of this boundary to a great table land will be noticed at length in the sequel. The soil continues poor and sandy for several miles, supporting clumps of aspen with a few oak in low places. The view across the Assinniboine reveals in the distance the Blue Hills, and between them and the river is a vast forest, which a subsequent exploration in the autumn showed to consist for two or three miles nearest to the Assinniboine, of oak, elm, ash, and aspens; beyond this limit the forest is almost entirely composed of aspens of small growth.

Grasshoppers were observed in great numbers, and the first humming bird was seen here. The banks of the river showed recent water marks 12 feet above its present level, willow and other trees overhanging the stream being barked by the action of ice during spring freshets at that elevation. Everywhere rabbits are numerous, and considerable areas occur covered with dead willows and young aspens, barked by these animals in the winter about two feet six inches above the ground. The height of the bank is 80 feet above the valley, denoting a rapid rise in the general level of the country.

On the morning of the 20th we entered the Bad Woods, and followed the road cut by the hunters in 1852. The aspens were much disfigured by countless numbers of caterpillars, resembling those of the destructive Palmer worm. In the afternoon we arrived at the Sandy Hills; they consist of rounded knolls covered with scrub, oak, and aspens. Our latitude to-day was ascertained to be  $49^{\circ} 46' 19''$ , the height of the prairie 150 feet above the river, the breadth of the valley in which the river flowed 5,680 feet, and the variation of the compass  $13^{\circ}$  E. After passing the point where the foregoing observations were made, the trail again enters the Bad Woods and continues through them until it strikes the Sandy Hills again. These rounded eminences have all the appearance of sand dunes, covered with short grass and very stunted vegetation.

As we emerged from the Bad Woods a noble elk trotted to the top of a hillock, and surveyed the surrounding country; a slight breath soon carried our wind as the hunter was endeavouring to approach him, he raised his head, snuffed the air and bounded off. Another terrible thunderstorm came on at sunset, with heavy rain and boisterous wind. The aspect of the country for many miles is that of a plain sloping gently to the west, covered with innumerable mounds or hillocks of sand, scarcely clothed with vegetation; here and there small lakes or ponds are found, fringed with rich

verdure, but its general character is that of sterility. From the summit of an imposing sand hill, formerly a drifting dune, which we ascended on the 21st, the country lay mapped at our feet, as far as the eye could reach north, east, and west, sand hills, sometimes bare, but generally covered with short grass, met the eye.

On the afternoon of this day a hailstorm of unusual violence caused us to halt. The stones penetrated the bark of our canoes, and broke off the gum. The grasshoppers, which were very numerous just before the storm began, suddenly disappeared; but they might be found quietly clinging to the leaves of grass in anticipation of the storm. After it had passed, they re-appeared, apparently in undiminished numbers, although every member of the party, crouching for shelter under the carts and waggon, fully expected the complete annihilation of these destructive and troublesome insects. A singular instinct enables them to seek and find refuge, even from a pitiless hailstorm or a drenching rain. The same evening a thunderstorm again visited us; but the sun set in gorgeous magnificence, with a brilliant rainbow and vivid flashes of lightning in the east. The cinnamon thrush is not uncommon among the sandy hills; we saw several during the day. The next day we reached the pines, for which we had been anxiously looking, but to our disappointment they proved to be nothing more than balsam spruce in scattered clumps. Another thunderstorm this evening.

On the 23rd we passed for a distance of eight miles through a country of sand ridges, until we reached Pine Creek. Here the sand hills are absolutely bare, and, in fact, drifting dunes. Sending the main party in advance, Mr. Dickinson and I set out to examine the valley of the Assiniboine, where Pine Creek disembogues. The sand dunes were seen reposing on the prairie level, about 150 to 180 feet above the river. In crossing the country to regain the carts, our course lay across a broad area of drifting sand, beautifully ripple-marked, with here and there numbers of the bleached bones of buffalo protruding from the west sides of the dunes, memorials probably of former scenes of slaughter in buffalo pounds similar to those which we witnessed some weeks afterwards at the Sandy Hills on the South Branch of the Saskatchewan. The progress of the dunes is very marked; old hillocks partially covered with herbage are gradually drifted by the prevailing westerly wind to form a new one. Sometimes the area of pure sand was a mile across, but generally not more than half that distance. The largest expanse we saw was near the mouth of Pine Creek; it is called by the Indians "the Devil's Hills," and a more dreary, parched-looking region could scarcely be imagined.

We reached the mouth of the Little Souris River on the 24th, and made preparations to cross the Assiniboine at this point. The distance travelled through the Sandy Hills was about forty-eight miles; their breadth does not exceed ten miles. At the mouth of the Souris the grasshoppers were in countless numbers, and so voracious as to attack and destroy every article of clothing left for a few minutes on the grass. Saddles, girths, leather bags, and clothing of any description were eaten without distinction. Ten minutes sufficed them, as our half-breeds found to their cost, to destroy three pair of woollen trousers which had been carelessly thrown on the grass. The only way to protect our property from the depredators was to pile it on the waggon and carts out of reach. There were two distinct broods of grasshoppers, one with wings not yet formed, which had been hatched on the spot, the other full grown, invaders from the prairies south of the Assiniboine. We noticed here to-day the first flight of these insects, which afterwards were witnessed on a scale of alarming magnitude, giving rise in their passage through the air to optical phenomena of very rare and beautiful descriptions. As we cautiously approached the bank of the river opposite the mouth of the Little Souris on the look out for Sioux Indians, some jumping deer and a female elk were observed gambolling in the river. A shot from a Minie rifle dispersed them, and started from their lair two wolves who were watching the deer, patiently waiting for an opportunity to surprise them.

The volume of water in both rivers was carefully measured at the point of junction. The Assiniboine was found to be 230 feet broad, with a mean depth of six feet, and a current of one mile and a quarter per hour. The Little Souris was 121 feet broad, two feet four inches mean depth, and flowing at the rate of half a mile an hour. Observing numbers of fish rising at grasshoppers in the Souris, we stretched a gill net across the mouth of the river, and succeeded in taking pickerel, gold-eyes, and suckers, the grey and the red. In a second attempt we caught a tartar; a huge sturgeon got entangled in the meshes of the gill net, and before we could land him he succeeded in breaking away and carrying a portion of the net along with him.

Signs of Sioux Indians in the neighbourhood led to our keeping watch during the night; and on the morning of the 25th we proceeded cautiously up the valley of the river, keeping a sharp look-out. On the left bank the Blue Hills of the Souris are visible ten miles from the mouth of the stream, and towards the west the Moose Head Mountain is seen to approach the Grand Rapids of the Assiniboine. The first rock-exposure in the valley was observed about 15 miles from the mouth of the Souris. It consisted of a very fissile, dark blue argillaceous shale, holding numerous concretions containing a large per-centage of iron, partly in the state of carbonate and partly as the peroxide. Some very obscure fossils were found, with fragments of a large *Inoceramus*. The shale weathers ash-white. It is exposed in a cliff about 90 feet high. The upper portion of the cliff consists of yellow sand, superimposed by sandy loam holding limestone boulders and pebbles. The exposure of shale is 70 feet thick, in horizontal layers. The country west of the Souris so far is an open, treeless, undulating prairie. On the east side the Blue Hills are very picturesque, with their flanks and summits wooded with aspen. Rain as usual; the day closed with a thunder-storm.

On the 27th we arrived at the westerly bend of the Souris in the midst of a very lovely, undulating country; the river is here 50 feet broad, and in its passage through the Blue Hills it has excavated a valley fully 450 feet deep. Rock exposures are of frequent occurrence, the dip being 3° south. Fragments and perfect forms, but very fragile, of a large *Inoceramus* are very common. The ferruginous concretions are disposed in regular layers and constitute a marked feature

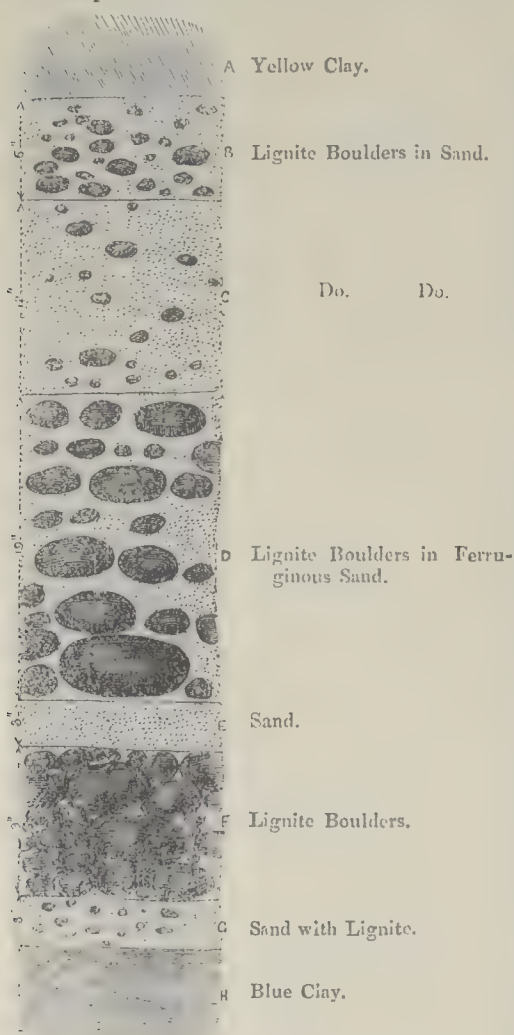


of the Cretaceous rocks of this valley. A continuation of the valley of the Souris extends in a direction nearly south-east towards Pembina River, with which it is said by the half-breeds to interlock. Three lakes visible from our camp were said to be the sources of the Pembina River. A little stream issuing from the most westerly of these is called Back-fat rivulet; it flows into the Souris. Deer are very numerous at this beautiful bend of the river. It appears to be a favourite watering place. The half-breeds of St. Joseph often cross it at this bend when on their hunting expeditions to the Grand Coteau. It is not improbable that it will become a point of importance if ever an emigrant route should be established from Minnesota to the Pacific *via* the South Branch of the Saskatchewan; and from the great distance saved by going through St. Joseph, instead of Fort Garry, it is not improbable that this may yet be the case.

On the 30th we succeeded in passing the Blue Hills, and enjoyed on the evening of the same day one of the most sublime and grand spectacles of its kind which it is possible to witness. Before leaving the last ridge of the Blue Hills we suddenly came upon the borders of a boundless level prairie 150 feet below us, and of a rich, dark-green colour, without a tree or shrub, and with one solitary conical hill in its centre. Here we expected to find buffalo, but not a sign of any living creature could be detected with the aid of a good glass. The prairie had been burnt last autumn, and the buffalo had not arrived from the south or west to people this beautiful level waste. What a magnificent spectacle this vast prairie must have furnished when the fire ran over it before the strong west wind!

From beyond the South Branch of the Saskatchewan to Red River all the prairies were burned last autumn, a vast conflagration, extending for 1,000 miles in length and several hundreds in breadth. The dry season had so withered the grass that the whole country of the Saskatchewan was in flames. The Rev. Henry Budd, a native missionary at the Nepoween, on the North Branch of the Saskatchewan, told me that in whatever direction he turned in September last the country seemed in a blaze; we traced the fire from the 49th parallel to the 53rd, and from the 98th to the 107th degree of longitude. It extended, no doubt, to the Rocky Mountains.

A few miles west of the Blue Hills, being anxious to ascertain the dip of a very remarkable exposure of shale, with bands of ferruginous concretions, Mr. Dickenson levelled with the utmost care an exposure facing the south, and found it to be perfectly horizontal. At the base of the exposure, and on a level with the water's edge, we succeeded in finding a layer of rock full of gigantic *Inoceramus*. One specimen measured  $8\frac{1}{2}$  inches in diameter, it was very fragile, but the peculiar prismatic structure of the shell was remarkably well preserved. On attempting to raise it, it separated into thousands of minute prisms so characteristic of this shell.



Scale 1 in. = 1 ft.

SECTION ON THE LITTLE SOURIS, SHOWING ANCIENT BEACHES WITH LIGNITE BOULDERS.

Vast numbers of pigeons were flying in a north-westerly direction, and our friends the grasshoppers were everywhere abundant. From the Blue Hills to the South Bend of the river, rock exposures, possessing the characteristics already noticed, occurred at every bend of the river. The first specimen of lignite was seen near the mouth of Plum Creek, where we camped on the 29th. It was a water-worn rounded boulder. On points of the river valley some fine oak, elm, balsam poplar, and aspen are found for the first 20 miles. The guelder rose is common, wild prairie roses abundant, snowberry, and two varieties of cherry, of frequent occurrence, as well as woodbine, wild convolvulus, and hop.

A little beyond Plum or Snake Creek we found numerous pebbles and boulders of lignite, and with a view to ascertain whether the lignite existed *in situ* we made an excavation in the bank of the river and exposed the stratification for a depth of 25 feet. The last exposures of the Cretaceous shales were observed about three miles east of the bank where this trial was made. A few hours' labour revealed five old beaches, probably of an inland lake. These beaches were composed of sand and boulders of lignite, from the size of a hen's egg to one foot in diameter. No fragment of lignite was found which did not possess a rounded or spheroidal form, and a roughly polished or worn surface. An abundant supply was speedily obtained for a fire, which was soon made on the bank; a strong sulphurous odour was emitted from the iron pyrites in the lignite. The section exposed the stratification shown in the woodcut.

Some boulders of lignite when broken open exhibited streaks and small particles of amber.

The low hills about Snake Creek are sand dunes, and on their sides an *opuntia* is very common. The prairie on the west of the Souris, as well as on the east, is treeless; the banks of Snake Creek support a thin belt of small forest trees, such as oak and ash, with a few ash-leaved maple. The annual fires prevent the willows and aspens from covering the country, which they

undoubtedly would do until replaced by other species, if not destroyed to within a few inches of the root every time the fire sweeps over them. The banks of the Souris here are not more than 40 feet high, with level prairies on either hand, a few miles beyond the Snake Hills. Within four miles of the mouth of Snake Creek, Oak Lake, several miles in diameter, attracted the hunting portion of our party; they brought back some pelicans, and a score of duck. Thunder storms as usual to-day and yesterday.

On the 1st July we arrived at the Souris sand hills, and made a section of the river bank where a land slip occasioned a fine exposure to the water's edge. The formation consisted of blue clay above the level of the river five feet, supporting four feet of ferruginous sand and gravel, on which reposed 12 feet of sandy loam and sand to the prairie level. The blue clay, capped by the ferruginous sand was traced for a distance of  $2\frac{1}{2}$  miles, and showed a dip to the south of two feet in the mile, the clay disappearing beneath the water. No organic remains of any description were found, although a careful search was made. Boulders of lignite from six inches to nine in diameter were frequently seen in the bed of the river. The eggs of the nighthawk were several times found on the bare ground, with no approach to a nest for the helpless young. The parent birds endeavoured to draw us away from their eggs, fluttering, as if wounded, a short distance from them, and uttering cries of distress. The Hudson's Bay Company have a post on the river among the sand hills, which is maintained only during the winter; the Sioux in summer and autumn being altogether opposed to the approaches of civilization in their hunting grounds, and entertaining besides a feeling of deadly hostility to the Red River half-breeds.

Near the Company's house we found on the river bank an extensive deposit of bog iron ore, capped by shell marl, and above the marl drifted sand. The banks of the river are here not more than 25 feet high, and on the east side there is a narrow fringe of fine timber. The Bois de Vache (dried buffalo dung) is distributed very abundantly in the prairie and through the sand hills and ranges near to the post. In fact the buffalo were very numerous during the whole of the winter of 1856 and spring of 1857 on the banks of the Souris, but the great fires during the autumn of last year have driven them south and north-west, and between the two branches of the Saskatchewan. The country is very low after passing the last sand hills, and over a large extent of prairie south of these drift timber is found, showing the extraordinary rise in the waters of the river during the floods of 1852.

On the 2nd July we observed the grasshoppers in full flight towards the north; the air as far as the eye could penetrate appeared to be filled with them. They commenced their flight about nine in the morning, and continued until half-past three or four o'clock in the afternoon. About that hour they settled around us in countless multitudes, and immediately clung to the leaves of grass and rested after their journey. On subsequent days when crossing the great prairie from Red Deer's Head River to Fort Ellice, the host of grasshoppers were beyond all calculation; they appeared to be infinite in number. Early in the morning they fed upon the prairie grass, being always found most numerous in low, wet places, where the grass was long. As soon as the sun had evaporated the dew, they took short flights, and as the hour of nine approached, cloud after cloud would rise from the prairie and pursue their flight in the direction of the wind, which was generally S.S.W. The number in the air seemed to be greatest about noon, and at times they appeared in such infinite swarms as to lessen perceptibly the light of the sun. The whole horizon wore an unearthly ashen hue from the light reflected by their transparent wings. The air was filled as with flakes of snow, and time after time clouds of these insects forming a dense body, casting a glimmering silvery light, flew swiftly towards the north north-east, at altitudes varying from 500 to perhaps 1,000 feet.

Lying on my back and looking upwards as near to the sun as the light would permit, I saw the sky continually changing colour from blue to silver white, ash grey and lead colour, according to the numbers in the passing clouds of insects. Opposite to the sun the prevailing hue was a silver white, perceptibly flashing. On one occasion the whole heavens, towards the south-east and west appeared to radiate a soft grey-tinted light with a quivering motion, and the day being calm, the hum produced by the vibration of so many millions of wings was quite indescribable, and more resembled the noise popularly termed "a ringing in one's ears," than any other sound. The aspect of the heavens during the greatest flight we observed was singularly striking. It produced a feeling of uneasiness, amazement, and awe in our minds, as if some terrible unforeseen calamity were about to happen. It recalled more vividly than words could express the devastating ravages of the Egyptian scourges, as it seemed to bring us face to face with one of the most striking and wonderful exhibitions of Almighty power in the creation and sustenance of this infinite army of insects.

In the evening, when the grasshoppers were resting from their long journeys, or in the morning, when feeding on the grass leaves, they rose in clouds around us as we marched through the prairie—if a strong wind blew they became very troublesome, flying with force against our faces, in the nostrils and eyes of the horses, and filling every crevice in the carts. But fortunately, comparatively few flew on a windy day, otherwise it would have been almost impossible to make headway against such an infinite host in rapid motion before the wind, although composed individually of such insignificant members.

Those portions of the prairie which had been visited by the grasshoppers wore a curious appearance; the grass was cut uniformly to one inch from the ground, and the whole surface was covered with the small, round, green exuviae of these destructive invaders.

The valley of the Souris, along which we travelled during the day, varies from one quarter to one mile broad; the river is not more than 25 feet across and very shallow. It flows through a rich open meadow, 20 to 35 feet below the general level of the prairie, which on either hand is undulating, treeless, light, and covered with a short stunted grass, with abundance of last year's bois de vache. The first fresh buffalo tracks were seen to-day, and while taking observations for latitude, tracks of a different character and greater significance were discovered by one of the half-breeds—the



fresh print of horses' feet, pronounced to be a few hours old, denoting the presence of Sioux or Assinniboinés in our neighbourhood.

Before reaching the 49th parallel, the Souris meanders for several miles through a treeless valley, about a mile broad and 60 feet below the prairie level. Turtle Mountain on the east rises nobly from the great plain, the boundary line between British and American territory cutting it. The country west of the Souris is a treeless desert, in dry seasons destitute of water, and without a shrub or bush thicker than a willow twig. We ascertained the breadth of this arid, woodless track to be at least 60 miles, north of the Red Deer's Head River on the 49th parallel. Near the boundary line the Souris expands into a series of large ponds and marshes which are called the Souris Lakes. In high water they form a continuous lake of imposing magnitude, extending many miles south of the 49th parallel, consequently far within the United States Territory.

A vast number of boulders are strewed over the hill bank of the Souris, near the 49th parallel, and on a point between a small brook and the Souris we found a number of conical mounds and the remains of an intrenchment. Our half-breeds said it was an old Mandan village; the Indians of that tribe having formerly hunted and lived in this part of the Great Prairies. We endeavoured to make an opening into one of the mounds, and penetrated six feet without finding anything to indicate that the mounds were the remains of Mandan lodges. There is a Mandan village near Fort Clark on the Missouri, and in the country drained by the Yellowstone the remains of this once fine and powerful tribe are now to be found.

Having reached the 49th parallel and traced the Souris in search of Lignite in position for a distance of 100 miles, we altered our course to a good camping ground on Red Deer's Head River, and made preparations for crossing a treeless, arid, prairie at least 60 miles broad, in a direction nearly due north.

The Little Souris nowhere approaches the Missouri nearer than 30 or 40 miles.\* Beyond the Souris Lakes it flows in a valley 200 feet below the level of the prairie, with a wooded bottom from one half to two miles wide. The nearest timber in the direction of the proposed Pacific Railroad, near the 49th parallel, east of the Souris, is in the valley of Red River, 200 miles distant, and with the exception of cotton wood, there is no timber west of the Souris for 400 miles at the Bear's Paw.† Where Mr. Tinkham crossed the Little Souris,‡ far within the limits of the United States Territory (lat. 48°02'), he found it on the 21st July to be 120 feet wide, and too deep to ford. The effects of evaporation are plainly seen in the diminished volume of water which flows through the Blue Hills only a few miles from its junction with the Assinniboine.

## CHAPTER II.

### FROM THE FORTY-NINTH PARALLEL ON THE LITTLE SOURIS TO FORT ELLICE.—FROM FORT ELLICE TO THE QU'APPELLE MISSION.

Indian Signs—Smell of fire—The Sioux—Precautions—"Something"—"Souris Lakes"—Red Deer's Head River—The Great Prairie, character of—Mirage—Birds—Grasshoppers—Pipestone Creek—Country changed—Forest disappeared—Cretaceous Rocks—Buffalo Bull—Fort Ellice—McKay—Crees—Hunters—Provision Trading Posts—Pemican—Dried Meat—Thunder Storms—Mammoth Bones—Ojibway Hunter—Half-breeds—En Route for the Qu'Appelle Mission—Grasshoppers—Thunder Storm—Trail—Weed Ridge—Kinni-Kinnik—Mode of Manufacturing—Boulders—White Crane—Magpies—Birds—Dew—Aridity of Great Prairie—Charles Pratt—Chalk Hills—Indian Turnip—Qu'Appelle Lakes—Fresh Arrangements—Descent and Ascent of the Qu'Appelle—Qu'Appelle Mission—Dimensions of Valley—Character of Lakes—White Fish—Rev. James Settee—Garden of Mission—Grasshoppers—Christian Worship—Baptism—"Praying Father" and "Praying Man"—Rum—Indian Wishes.

While engaged in taking observations for latitude at the mouth of Red Deer's Head River, on the night of the 2nd July, John McKay, a Scotch half-breed, observed what he thought to be a wolf approach the brow of a hill, about 200 yards from us, and after apparently gazing at the encampment for a few minutes, it retired beyond view. The night was clear, and as we were encamped in the valley of the river, close to its junction with that of the Souris, surrounded by steep hills about 150 feet high, an object appearing on the brow of those in our rear could be seen projected against the clear sky. McKay took no further notice of the strange visitor than to mention that he saw it and thought it was a wolf, but before we retired to our tents at 2 a.m. we saw another figure, which he declared to be an Indian, appear near the same spot. Two of the party cautiously approached the foot of the hill, but before they could reach it, the figure crouched and slowly retired. The horses were gathered near the carts and a watch set, but this night passed without the reappearance of the object of our suspicion. On the following morning we endeavoured to discover tracks at the spot where it had appeared, but the hill being composed of gravel, the soil had received no impression which our most sharp-sighted half-breeds could detect.

In the afternoon of the following day having verified our observations on polaris by a solar observation at noon, we started for a new camping ground about 12 miles up Red Deer's Head River, where we proposed to take in a supply of wood for fuel before crossing the Great Prairie to Fort Ellice. On our way thither the old hunter who had joined us at Prairie Portage said he *saw fire*;

\* Governor Steven's Explorations and Surveys, p. 21.

† *Ibid.*, p. 41, Report of the Secretary of War.

‡ *Ibid.*, p. 357.

every member of the party strained his olfactory nerves to the utmost, but without detecting the smell of fire, nevertheless the old hunter persisted in his statement that he had "smelt it." We camped at sunset close to the river, and when taking supper distinctly heard the distant neigh of a horse; this was considered sufficient warning, and taken in connexion with the appearance of the object on the hill in the rear of our camp the night before, was held to be conclusive evidence that we were watched by the Sioux, and that an attempt would be made in the night to steal our horses.

Our fires were put out, the carts placed close together, and a watch set; the half-breeds did not anticipate an attempt until the approach of dawn, but the sudden galloping of several horses who were feeding in the valley about 100 yards from us, towards the carts, soon after ten, proved that Indians were already near us. On hearing the horses approach, the men started up and ran to stop them, which they succeeded in doing before they passed the carts. Each horse was now tethered, and the half-breeds, crawling through the long grass, arranged themselves in a half-circle, about 70 yards from the carts, each with his gun loaded with buckshot. The night was dark, and perfect silence was maintained in the camp. Towards morning one man came in to report; he stated that he had heard "something" cross the river and crawl through the grass within a few yards of him. He waited a few minutes for more to follow before he fired or gave the alarm, and then cautiously crawled through the long grass in the track of the "something" which had passed near to him. The track led him to within 30 yards of our tents, and then turned towards the river, and evidently crossed it.

Morning soon dawned, and the watchers came in. We examined the tracks described by the half-breed who had first heard the intruders, and they were pronounced to be those of an Indian. Further examination in full daylight showed that we had been surrounded by a band, who, however, perceiving that we were on the alert, and that the horses were tethered, made no attempt to steal them. Had it not been for the old hunter's excellent nose, there is little doubt that we should have lost our horses during the night.

The mouth of Red Deer's Head River is within a few yards of the 49th parallel. Mr. Hime took a photograph of the valley, while others of the party made an excursion to the Souris Lakes, within the United States territory, in the hope of finding buffalo to replenish our stores; but although fresh tracks were seen, and skulls and bones in large numbers, the remains of last year's "run," yet no living animal but a "cabri" was visible.

On the morning of the 4th, having loaded the carts with wood and taken a supply of water from Red Deer's Head River, which is here a rapid, clear stream 12 feet broad, we started on a nearly due north course to cross the Great Prairie. The water marks on the banks of Red Deer's Head River show that it rises 15 feet during spring freshets, almost filling the low, narrow valley in which it flows. The banks are fringed with small elm, balsam, poplar, and aspens. The prairie for many miles appears to be perfectly horizontal; we always seemed to be in the centre of a very shallow depression, with a uniform and well-defined horizon in all directions. In the morning the distant outline meeting the clear sky was best defined; as the day wore on refraction magnified the tufts of grass and small willows into bushes and trees, destroying the continuity of the fine horizontal line where sky and earth seemed to meet. Occasionally the effects of mirage were very delusive; beautiful, tranquil lakes suddenly appeared in the distance, and as quickly faded from our view. Fortunately, the almost daily thunderstorms which had occurred replenished the marshes and small ponds, and gave us an abundant supply of water, but in some seasons the buffalo hunters suffer much from the want of water in crossing this vast treeless prairie.

Among the birds noticed during this monotonous journey were turkey buzzards, ravens, barking crows, and black terns. We saw some herds of cabri, and McKay succeeded in killing a female. We came to several shallow lakes, which are often dry in the autumn; ducks were plentiful in them, and afforded us a grateful supply of fresh food. The grasshoppers were very abundant, and for four days filled the air like flakes of snow; they rose simultaneously, when about to take their flight, from areas two to 20 acres in extent, first perpendicularly to the height of 12 or 14 feet, then in a slanting direction, until they had attained an elevation of from 200 to 300 feet, after which they pursued a horizontal course before the wind. In a light breeze the noise produced by their wings was like a gentle wind stirring the leaves of a forest.

Our half-breeds informed us that this great prairie west of the Souris continues treeless and arid for a distance of 60 miles; it is then crossed by a river, probably an arm of the Souris, connecting, as will be afterwards shown, with the Qu'Appelle River at Elbow Bone Creek. Beyond the river the prairie continues for 80 miles further, without tree or shrub; and as this was the utmost westerly limit to which any of them had journeyed in their buffalo-hunting expeditions, they could afford us no further information respecting its extent. They were most of them familiar with the country south of the Great Prairie, the Grand Coteau de Missouri, where the buffalo range during the summer in vast herds. On the 6th July we arrived at Pipe Stone Creek, and found the country swarming with a young brood of grasshoppers, with wings about a quarter of an inch long, showing that their progenitors had arrived in the preceding autumn in time to deposit their eggs in the soil. Innumerable hosts of these insects passed overhead during the day, and on looking up through an excellent marine glass, I could see them flying like sand at an immense height. Had it not been for the thunderstorms which daily refreshed and invigorated the herbage, it is probable that our cattle would have suffered seriously from the devastations of these insects.

Pipe Stone Creek is 20 feet broad at our crossing place, with a swift current, and a depth of water varying from one and a half to three feet. Among the trees fringing its banks the ash-leaved maple is most numerous. The valley of this river is narrow, but rich and beautiful. On the hills in its neighbourhood boulders are numerous and the soil barren. We arrived at the Assiniboine near



he Two Creeks on the evening of the 7th July. It may here be remarked that our hunter, who had undertaken to guide us in a straight line across the prairie from Red Deer's Head River, confessed that he did not know the country when within 10 miles of the Assinniboine; he nevertheless declared his conviction that we should strike the river at the point to which he had promised to lead us. He had not visited it for 20 years, and the timber, consisting of aspens and willows which then covered the country, had nearly all disappeared. The old man was correct, the face of the country had changed, the aspen forest had been burnt, and no vestige remained; we struck the Assinniboine within two miles of the spot to which he had been directed to lead us.

Cretaceous rocks were again recognized on the steep hill sides of the Two Creeks. They had the same lithological aspect as those of the Souris; organic remains were scarce, but in sufficient numbers and variety to establish their position. On the 9th we passed through a fine grazing country, and here saw the first buffalo bull. After a chase of half an hour's duration, we succeeded in killing him. Although very tough and rather strong flavoured, he was an acceptable addition to our larder. Three more bulls were seen on the following morning, but being anxious to reach Fort Ellice, and already provided with meat, they were permitted to pass us unmolested. The country in the neighbourhood of Beaver Creek is very beautiful, but the soil is sandy, supporting a short stunted herbage. We arrived at the Fort on the morning of the 9th, and took up our camping ground on the banks of Beaver Creek, close to the beautiful valley of the Assinniboine.

Fort Ellice was at one period a post of considerable importance, being the *dépôt* of supplies for the Swan River District, now removed to Fort Pelly. The buildings are of wood, surrounded by a high picket enclosure. Mr. McKay, one of the sub-officers, was in charge at the time of our arrival. Some 20 years ago, before the small-pox and constant wars had reduced the Plain Crees to one sixth or eighth of their former numbers, this post was often the scene of exciting Indian display. Mr. McKay remembers the time when the entire tribe who now hunt on the Qu'Appelle and South Branch would approach the Fort to receive their supplies, to the number of 800 warriors, splendidly mounted, and singing their war songs. Twenty years ago the tribe numbered 4,000, in 500 tents; at the present day they do not exceed 120 tents, which represent a population of 960 or 1,000 souls. Formerly Fort Ellice used to be visited by the Crees alone; now it numbers many Ojibways among the Indians trading with it. The Ojibways or Saulteaux have been driven from the woods by the scarcity of game, the large animals, such as moose deer and bear having greatly diminished in numbers. Many of the wood Indians now keep horses and hunt on the plains.

On the 11th July a number of hunters attached to Fort Ellice came in with provisions, such as pemican and dried buffalo meat, which they had prepared in the prairies a few days before, about 30 miles from the Post, where the buffalo were numerous. Fort Ellice, the Qu'Appelle Post, and the establishment on the Touchwood Hills, being situated on the borders of the Great Buffalo Plains, are provision trading posts. They obtain from the Plain Crees, the Assinniboines, and the Ojibways, pemican and dried meat to supply the brigades and boats in their expeditions to York Factory, on Hudson Bay, and throughout the northern interior. Pemican is made by pounding or chopping buffalo meat into small pieces and then mixing it with an equal quantity of fat. It is packed in bags made of the hide of the animal, in quantities of about 90 pounds each. Dried meat is the flesh of the buffalo cut into long and broad thin pieces, about two feet by 15 inches; it is smoked over a slow fire for a few minutes, and then packed into a bale of about 60 pounds. We had many opportunities of seeing the Cree women on the Qu'Appelle cut, prepare, and pack dried meat.

At Fort Ellice the thunder storms were as violent as on the Souris, not a day passed without lightning, thunder, and generally violent rain of half an hour's duration. The grasshoppers at this Post had destroyed the crops last year, and at the time of our visit, the young brood were well advanced, their wings being about one third of an inch long. Full-grown insects from the south were flying overhead or alighting in clouds around us, so that all hopes of obtaining a crop from the garden or potato fields were abandoned for this year. Provisions were very scarce at the Post, and had it not been for the fortunate arrival of the hunters with some pemican and dried meat, we should have been compelled to hunt or kill the ox.

From Mr. McKay I received a particular account of the "Great Bones" on Shell Creek, which had long been a source of wonder and awe to the Indians hunting on the left bank of the Assinniboine, and whose magnificent descriptions led me to suppose they might belong to a cetacean, and were worth a day's journey out of our track to visit and examine. They were seen many years ago protruding from the bank of Shell Creek, 20 feet below the prairie's level. Mr. McKay instructed some of the hunters attached to the Post to bring them to him. No Indians would touch them, and the half-breed only brought a tooth and collar bone, which were stated by a medical gentleman to whom they were shown to belong to a mammoth. Mr. Christie, of Fort Pelly, we were informed, went to Shell Creek with a view to collect more specimens; he obtained some ribs, but in a state of crumbling decay; they were sent to Red River Settlement. The Indians had long regarded them as the bones of a Manitou and worthy objects of veneration. An old Indian on Dauphin Lake, to whom reference will be made hereafter, described similar bones on the banks of Valley River, leading to Dauphin Lake; but the season was too late when exploring that part of the country to permit of an examination.

On Monday the 12th preparations for continuing our journey westward were completed by engaging an Indian to assist in paddling Mr. Dickinson down the Qu'Appelle or Calling River from the Mission to its junction with the Assinniboine. The half of his wages he stipulated to have in advance. Mr. McKay told me he was a bad Indian and not to be trusted, but we could not succeed in getting another. When on the point of starting, a young Ojibway, painted and adorned with

feathers, galloped up to the Post, entered the room, drew from beneath his moose skin robe two moose tongues and a mouffle, which he quietly handed to Mr. McKay, and, squatting on the floor without speaking a word, lit his pipe. After a few minutes he informed us that he and his father had killed two moose, 30 miles off, and desired McKay to send for them. Two half-breed hunters also arrived at this moment, in sad plight, hungry and tired, with worn horses and torn clothes. They had come from Fort Union, on the Missouri, having been hunting on the Grand Coteau, where they met a war party of 60 Blackfeet. They then fled to the fort, the Blackfeet pursuing them, and insisted that the Fort Union people should give them up, a request which was promptly refused.

During the night the Fort Union people gave them a small supply of provisions, and leading them out to the prairies, told them to run for it; they did so, and arrived in safety at Fort Ellice after a harassing journey.

At 4 p.m. on the 12th July we left Fort Ellice and travelled due west through a pretty country near the banks of the Qu'Appelle or Calling River. We passed one quagmire, and, after breakfast on the following day, arrived at the Cross Woods; they consist of aspen, with a splendid undergrowth. The pasturage is excellent, and the road good. Observed to-day the grasshoppers descending from a great height perpendicularly, like hail—a sign of approaching rain. On the 12th we passed through a fair rolling country, the soil consisting of sandy loam with much vegetable matter in the valleys. Aspen groves are numerous, and many little lakes, margined with reeds, afford quiet breeding places for duck. The road is good in summer, but wet and soft in the spring.

The grasshoppers yesterday were excellent prognosticators, a violent thunder storm in the afternoon commenced in the east, (all preceding storms had come from the west,) and was accompanied by exceedingly heavy rain and a very boisterous wind. The storm continued for several hours. At 9 in the evening the air was calm and the heavens clear and bright; at 10 the storm returned from the west, and a more terrific and sublime exhibition of elemental warfare none of us had ever before witnessed. Three times the lightning struck the earth so close to us that there was no perceptible interval between the flash and the shock. It was distinctly heard to *hiss* through the air, and, instead of penetrating the ground at once, it seemed to leap from bush to bush for a distance of 60 or 70 yards. So close did one flash approach us that when we had recovered from the shock and our eyes had regained their powers, several of us met each other, groping from cart to cart, to see if any of the party had been struck. It is remarkable that although the wind was blowing violently before and after the two flashes just described occurred, yet, between them, an interval of about three-quarters of a minute, there was a dead calm, and a calm of short duration succeeded each flash in our immediate vicinity.

The trail continued through good land for nine miles, with aspen groves on the crown of each undulation, and willow bushes in the hollows. Then came a prairie, three miles across, but of much greater extent longitudinally. Ponds were numerous, abounding with ducks and ducklings. The grey crane was very abundant, as well as a young brood of grasshoppers. Another rain and thunder storm on the evening of this day, the 14th, lasting as usual for about one hour. On the following morning we reached a treeless prairie, marked at its western extremity by a sandy ridge running N.W. by S.E., known among the Indians as the Weed Ridge. It was covered with the bearberry, from which the kinni-kinnik, used to mix with tobacco, is made. This was the first time we saw this weed since leaving the sandy hills of the Assiniboine. The Indians of the prairies generally use the inner bark of the *Cornus sericea*, the red barked willow as they term it. We saw them smoke the inner bark of the dogwood, *Cornus alternifolia*.

The mode in which these barks are prepared is very simple. A few branches, about three-quarters of an inch thick and four or five feet long, are procured, the outer bark is scraped off, after having been warmed over a fire; a knife is then pressed against the inner bark and drawn upwards, for a space of six or eight inches, until the whole of the inner bark is gathered in curly clusters round the stick; it is then thrust in the ground over the embers and roasted until quite dry, when, mixed with tobacco in equal proportions, it forms the favourite kinni-kinnik of the North-West Indians. I often saw them smoke bark or the leaves of the bearberry alone, when their supply of tobacco was exhausted. The Indian who accompanied us to the Qu'Appelle Mission complained of weakness and pain in the chest; he suffered much from cough, and was evidently consumptive; he was, however, treacherous and indolent, and, as will be shown hereafter, soon left us in the lurch.

Beyond the Weed Ridge the country is very undulating; boulders of both fossiliferous (silurian limestone) and unfossiliferous (gneiss) rocks were strewn on the flanks and summits of the hills. The white crane was first seen to-day. This beautiful bird is common in the Qu'Appelle Valley and in the Touchwood Hill range. It is a dangerous antagonist when wounded, striking with unerring aim and great force with its powerful bill. When a bird is wounded, the best way to avoid its attacks is to present the muzzle of the gun as it approaches; it will fix its bill in the barrel, and may then be destroyed without danger. Instances have been known of this bird driving his bill deep into the bowels of a hunter when not successful in warding off its blow. Magpies are numerous on the Weed Ridge, and the cat bird is heard in every little wooded dell.

On the 15th we passed two streamlets flowing into the Qu'Appelle. Their banks were fringed with small timber and quite lively with birds. In general birds are far more abundant here than on the Souris. On all the wooded brooks we saw magpies, cat birds, crows, and, occasionally, the solitary thrush; in the wet prairies, the rice bird, black tern, the golden-legged and common plover, the yellow-headed blackbird, common meadow lark, chipping sparrow, and grackle; on ponds and in marshes, ducks of many species, bittern and cranes. In the morning, after a clear night, we always observed heavy dew. This phenomenon was not so frequently noticed on the Souris under similar circumstances. There can be little doubt that the aridity and barrenness of the Great Prairie between the Qu'Appelle and the 49th parallel is owing to the small quantity of dew and rain, and



the occurrence of fires. North of the Qu'Appelle the country seemed to be far more humid, and the vegetation infinitely richer than south of that great valley.

Another prairie eight miles broad succeeding to that last described, and bounded by ridges having a N.W. and S.E. direction, introduced us on the 16th to a hilly country for some miles; the range is called the Indian Head; it contains many beautiful lakes and is well wooded. Here we met with Charles Pratt and party going to Red River. Charles Pratt is a half-breed catechist of the Church Missionary Society, well acquainted with the habits of Indians and of buffalo, but apparently scarcely sensible of the importance of his duties and the responsibility of his charge. He gave me a good deal of valuable information respecting the country, and, with characteristic generosity, if not a Christian sympathy, told John McKay to take a young heifer belonging to him when we arrived at the Mission and kill it in honour of our arrival. Pratt showed me some specimens of lignite which he had taken from a bed two feet thick at the Wood Hills about 80 miles south-west of the Hudson's Bay Company's Post. He described the hill or range of hills as an island in the prairie. Probably it was the remains of a tertiary coal bed, which, like the Stony Mountain near Red River, had escaped denudation.

An old Indian accompanying Charles Pratt, born in this part of the country, told us that he remembered the time when the whole of the prairie through which we had passed since leaving Fort Ellice was one continuous forest, broken only by two or three narrow intervals of barren ground. The view from the Indian Head range is exceedingly beautiful; it embraces an extensive area of level prairie to the north, bounded by the Aspen Woods on the borders of the Qu'Appelle Valley. A portion of the old forest alluded to by the Indian still exists on this range. It consists of aspen of large growth and very thickly set. A few cabri (prong-horned antelope) were seen in the Indian Head range; they used to abound in the country unwatered by the Qu'Appelle.

On Saturday the 17th we entered a very beautiful and fertile prairie at the foot of the Indian Head range, our course leading us in a northerly direction to the Qu'Appelle Mission. The common yarrow was very abundant, and with the harebell reminded us of other scenes far away. Six miles from the hills we arrived at a subordinate, shallow, broad valley, parallel to that of the Qu'Appelle. The aspect of its boundary suggested the shore of a lake or bank of a large river. The lower prairie consisted of a sandy loam, in which the Indian turnip was very abundant. We soon came up with a group of squaws and children from the Qu'Appelle Lakes, who were gathering and drying this root, which the Crees call the *Mis-tas-coos-se-ne-na*, or big grass root. The French half-breeds call it the pomme de prairie. The Sioux, *Tip-si-nah*. It is an important article of food in these regions. The botanical name is *Psoralea esculenta*. Many bushels had been collected by the squaws and children, and when we came to their tents they were employed in peeling the roots, cutting them into shreds and drying them in the sun. I saw many roots as large as the egg of a goose, and among those brought with me to Canada are some of even larger dimensions. The Crees consume this important vegetable in various ways. They eat it uncooked, or they boil it, or roast it in the embers, or dry it and crush it to powder, and make soup of it. Large quantities are stored in buffalo skin bags for winter use. A sort of pudding made of the flour of the root and the mesaskatomina berry is very palatable, and a favourite dish among the Plain Crees.

We reached the Qu'Appelle Lakes at 6 p.m., after passing through a magnificent prairie the whole day. In fact the country north of the Indian Head and Chalk Hill ranges is truly beautiful, and will one day become a very important tract. The Chalk Hills are a continuation of the Indian Head range. In the language of the Indians they contain bands of "soft white earth or mud." The half-breeds call them "Chalk Hills." It is a matter of regret that the time at our disposal did not permit us to make an excursion to them, notwithstanding that no indications of rocks in position were seen on the Indian Head range; they were recorded as composed of drift, which may or may not conceal rocks in position above the general level of the prairie north of them.

Great was our astonishment on arriving at the Qu'Appelle Lakes to find that they were narrow bodies of water, occupying an excavated valley about one mile broad, 250 feet deep, and differing in no important particular from the same valley at its junction with the Assinniboine—120 miles distant by the river, or 134 by the trail. The importance of the Qu'Appelle valley began to develop itself when the Crees at the Lakes informed us that it continued through the Saskatchewan without losing its breadth, and maintained, except for a short distance, a great depth below the prairie level. I determined, therefore, to explore the whole valley from the south branch of the Saskatchewan to the Assinniboine, and ascertain the relation it bore to those rivers. With this view the canoes were put in order, the party and supplies divided, and the arrangements detailed in the following paragraph completed.

Mr. Dickinson, with a French Canadian and a Cree half-breed, was to descend the Qu'Appelle river from the first Fishing Lake to its mouth. Mr. Fleming and myself were to ascend it from the same starting place to its source, and follow up the valley to the South Branch of the Saskatchewan. Mr. Hime was to explore Long Lake and meet Mr. Dickinson at Fort Pelly. I intended, upon reaching the South Branch, to descend that magnificent river in canoe to the Grand Forks, and then by the main Saskatchewan to Lake Winnipeg and Red River, a distance of about 1,000 miles canoe navigation.

The Qu'Appelle Mission is situated between the second and third Fishing Lakes. The situation is beautiful, and the country on all sides of a very novel and peculiar description. Here the Qu'Appelle valley is one mile and a quarter broad, and 250 feet deep. Both north and south a vast prairie extends, fertile, inviting, but treeless on the south, and dotted with groves of aspen over a light and sometimes gravelly soil on the north. Most beautiful and attractive, however, are the lakes, four in number, and from the rich store of fish they contain, are well named the Fishing Lakes. A belt of timber fringes their sides at the foot of the steep hills they wash, for they

fill the entire breadth of the valley. Ancient elm trees with long and drooping branches bend over the water; the ash-leaved maple acquires dimensions not seen since leaving the Red River, and the Me-sas-ka-to-mi-na is no longer a bush, but a tree eighteen to twenty feet high and loaded with the most luscious fruit.

The Qu'Appelle Mission was established last year (1858.) For some time past, however, Charles Pratt, the catechist, has resided where the Mission is situated, and has constructed a comfortable log house, fenced in a garden, and now possesses six or seven cows and calves. An old half-breed, whose name is obliterated in my note-book, took up his residence with Pratt; he had been engaged for the better part of his life at different fishing stations belonging to the Hudson's Bay Company throughout Rupert's Land, and he declared that in all his experience he had never seen the white fish (*corregonus albus*,) so large, numerous, and well flavored as in the Qu'Appelle Fishing Lakes.

The Rev. James Settee, the missionary, a native, of Swampy Cree origin, occupied Pratt's House; he arrived at the Mission last autumn. In the garden, where we found him, Indian corn was growing, as well as potatoes, turnips, beans, and other culinary vegetables. The grasshoppers had not yet visited the Mission, but vast flights had passed over it. They were seen passing the Company's post, 20 miles south, on the 8th of the month. They were then flying to the east. They had missed the Mission in 1857, for they visited the Touchwood Hills, forty to fifty miles north, and deposited their eggs in the ground, and during the present summer the young brood, as I learned a few weeks afterwards, destroyed all garden crops at the Touchwood Hills, and on the 28th July took their flight to the south-east.

On Sunday we attended service in Pratt's house; the Rev. Mr. Settee read the prayers in English with great ease and correctness; he preached in Ojibway, and a hymn was sung in the Cree language. Before the sermon the missionary surprised us by waking up a drowsy Indian who was enjoying a quiet nap in a corner of the room, and leading him to the temporary reading desk, commenced the ceremony of public baptism. My astonishment was not diminished when the reverend gentleman turning to me, without any preliminary notice, said abruptly, Name this man! After a moment's reflection I said, John, and without any unnecessary loss of time or words, John walked to his bench, and was soon apparently lost in noisy slumber to all consciousness of the privileges and blessings of which adult Christian baptism, duly received, had made him the inheritor.

When the Rev. James Settee arrived at the Mission last autumn, the Crees of the Sandy Hills having received intelligence that the bishop had sent a "praying man" to teach them the truths of Christianity, directed messengers to enquire whether "the Great praying father had sent plenty of rum, if so, they would soon become followers of the white man's good Manitou." The messengers returned with the sad intelligence that the great praying father had not only omitted to send rum, but he hoped that the Plain Crees would soon abandon the practice of demanding rum in exchange for their pemican and robes. The messengers were directed to return to the missionary with the announcement, that "if the great praying father did not intend to send any rum, the sooner he took his praying man away from the Qu'Appelle Lakes, the better for him."

There are very few tents about the Mission at present. Mr. Settee speaks English very fluently, and gets through the service without loss of time. The field for his labor is extensive, but not at present promising. When conversing with the Crees of the Sandy Hills, many of them expressed a wish to have their children taught by white men, but they did not appear to like the idea of their being taught by a native of a different origin. The school, however, appears here, as elsewhere among Indian tribes, to be the only sure ground for establishing the true faith among them. "Teach my children for two or three years, but let me follow the ways of my fathers," said the son of the Chief of the Sandy Hills to me. Many expressed a wish that their little ones should know the white man's cunning, and learn to cultivate the soil, but they would stipulate to remain themselves still the wild prairie Indians, hunting the buffalo, and occasionally tasting the savage excitement of war.

On the 20th July we launched our canoes on the Third Fishing Lake, and having seen Mr. Hime en route for Long Lake, my carts and horses on the way to the Grand Forks of the Qu'Appelle, Mr. Dickinson started for the mouth of the river, Mr. Fleming and myself with an Ojibway and Cree half-breed, paddled up stream with a view to trace out the valley to its junction with the South branch of the Saskatchewan. The succeeding chapter contains a narrative of this exploration, which is followed by Mr. Dickinson's description of his canoe voyage to the Assiniboine. We arranged to meet at Fort Ellice forty-three days after our simultaneous departure from the Third Fishing Lake.

### CHAPTER III.

#### FROM THE QU'APPELLE MISSION TO THE SOUTH BRANCH OF THE SASKATCHEWAN.

Depth of Fishing Lakes—Cross Sections—Confervæ—Lower Lakes 66 feet deep—Birds—Vegetation—Water-mark—Third and Fourth Fishing Lakes—Fish—Soundings in Fourth Lake—Fishing Lakes probably once united—Geese—Pelicans—Fourth Lake—Water-mark—Aspect of Valley in 1852—Qu'Appelle River—Prairie—Depth of Valley—White Cranes—Section of Alluvial Flats—Temperature—Character of Prairie—Birds—Shrubs—Antelope—Hare—Roses—Grand Forks—Plain Crees—Temperature of River—Ice-marks—Buffalo Tracks—Character of Stream—Willow Bushes—Fetid Air—Drift Clay—Erratics—Free-men's Houses—Prairie—Want of Timber—Thunder Storms—Touchwood Hills—Indians—Tolls—Diplomacy—Indian Resolve—The Grand Forks—Long Lake—Souris Forks—Souris of Qu'Appelle and Assiniboine—



Dimensions of Valley—The Grand Coteau—Prairie Fires—Indian Signs—A Prairie on Fire—Buffalo—Consequence of Prairie Fires—Reclamation of Sterile Areas—Indian Telegraph—Scarcity of Wood—Ancient Indian Encampment—The Plain Crees—Cree Tents—Provisions—Buffalo Pound Hill Lake—Indians—Shortstick—Aspect of Country—Coteau de Missouri—Last Mountain—Treeless Plain—The Grand Coteau—Character of—Buffalo—Birds—Plain Crees, Camp of—The Qu'Appelle Valley—Marrow—Precautions—Sandy Hills—Crees—Bois de Vache—Salt Lake—Dimensions of Valley—Erratics—Indian Hospitality—Eye-brow Hill—Source of Qu'Appelle—Buffalo—Character of Qu'Appelle Valley—Water-marks—Sandy Hills—Distribution of Boulders—Section—Rock Exposure—Shortstick—Sand Dunes—South Branch—The Qu'Appelle Valley—Cree Camp—Height of Land—Section of Valley—Levels—Buffalo Pound—Camp Moving—'Dead Men'—Old Buffalo Pound—Horrible Spectacle—New Pound—Bringing in Buffalo—Slaughter in Pound—Shortstick—"Talk"—Objections to Half-breeds—To the H. B. Co.—Shortstick's Wants—Rock Exposure—Boulders in Valley—Character of the South Branch.

Three-quarters of a mile from the mouth of the little stream joining the Second and Third Fishing Lakes, the lead showed 44 feet of water. This great depth surprised us, as we had been paddling since leaving the Mission in shallows not exceeding four and five feet in depth. Cross sections subsequently made showed that the lakes were generally deep on the north and shallow on the south side. An abundant growth of green conservæ covered the surface, which, in its aggregations and general distribution, reminded me of a similar profusion on the Lake of Woods during August, in 1857. The hill sides of the valley are deeply ravined; two excellent photographs, taken near the Mission, of the lakes and hills, display the chief characteristic of the valley with the fidelity which can only be approached by that wonderful art. The ravines are wooded, but the hills they separate bare, and we soon noticed that the north side began to show far less timber than the south, and of more stunted growth. The snow berry was seen in every hollow. Ash-leaved maple and elm were numerous on the south side of the lake.

Soundings near the middle of the lake showed 56 feet, which, when added to 249 feet, the depth of the valley below the prairie as ascertained by trigonometrical measurement, make the total excavation 305 feet. Another sounding, 200 yards from the N.W. point, gave 57 feet of water. This was the greatest depth we obtained; but Mr. Dickinson found the lower lakes to be 66 feet deep. The shores of gravel are strewn with blocks of drift limestone and the unfossiliferous rocks. Gulls are numerous about these remote lakes, and a pair of eagles have had their eyrie for many years in a fine elm tree, near the west end of the Third Fishing Lake. The hop grows very luxuriantly in the thin belt of woods on the south side, and the frost grape hangs in beautiful festoons from the drooping branches of the elm. The water-mark shows that this lake rises six to seven feet above its present level.

A low plateau, inundated every spring, separates the Third from the Fourth Lake. It is the delta of two ravines which in the spring and autumn bring down a large quantity of water from the prairie above. Third Fishing Lake is connected with Fourth Fishing Lake by a rapid stream flowing through the plateau, about 100 feet broad. At its mouth we saw a large number of fish rising at the grasshoppers which dropped from flights of these insects passing over at the time. In the same stream were many large fish, and among them several individuals of a species to which further reference will be made. Soundings in the Fourth Lake showed 54 feet; this depth was maintained for a long distance with great regularity. In fact, these lakes appear to be nearly uniformly deep and point to an excavating force, or peculiarity of rock formation deserving of further enquiry. The deltas at the mouth of the ravines coming in from the prairie at right angles to the general course of the valley give a clue to the mode in which the lakes were separated one from the other. It is very probable that they were once all united.

Geese appeared in large flocks in the Fourth Lake, and at its western end we saw a splendid flock of pelicans, numbering thirty-five individuals; as we approached they sailed majestically round and round, but took flight before we arrived within gun shot. Magpies are very numerous in the thin woods fringing the lakes, so also are grackles, the cat bird, and many smaller birds. The Fourth Lake is very shallow at its western extremity, six feet being the greatest depth recorded. The hills on the north side are quite bare, and trees on the south side are found only in the ravines. It is full of weeds and its water emits a very disagreeable odour, but the water-marks show that during spring freshets its level is eight feet higher than in the summer season. This is an important fact when taken in connection with the alleged appearance of the whole valley during wet springs; it is then said to resemble a broad river from a few miles east of the Saskatchewan to the Assinniboine. In 1852, a year memorable in Rupert's Land for the great floods which covered an immense tract of country, the Indians represent the Qu'Appelle Valley as filled with a mighty river throughout its entire length, flowing with a swift current from the lakelets at the height of land, soon to be described, to the Assinniboine, and as a mountain torrent through the short distance of 12 miles which separates them from the South Branch of the Saskatchewan.

After leaving the Fourth Lake and the marshes at its west extremity, we paddled, sailed, or tracked up a narrow swift stream, four and five feet deep and seventy feet broad, winding through a low alluvial flat in a valley of undiminished breadth and depth. The hill sides were absolutely bare, not a tree or shrub was to be seen. The prairie on either side is also treeless and arid. On the 21st, after spending a restless night owing to the attacks of multitudes of mosquitoes, we left the canoe in the hands of our half-breeds to track up the stream, and ascending to the prairie walked for some miles on the brink of this great excavation. We waited five hours for the canoe to reach us, the windings of the stream involving a course three times as long as a straight line up the valley. The hill sides began to acquire a more imposing altitude and probably exceeded three hundred feet. White cranes appeared in flocks of four and seven together; they were very wary and could not be approached.

The river was often seen to draw near to either side of the Great Valley, and it had excavated a

channel ten to twelve feet deep in the alluvial flats through which it pursued its tortuous course. Its banks revealed the following section :

6 inches light vegetable mould with sand,	9 feet yellow clay,
4 inches yellow clay,	2 to 3 inches hard ferruginous sand to the level
10 inches light vegetable mould (former surface),	of the river.

The last layer was hard, compact, and very coarse-grained. The river is here 60 feet broad and flows at a rate of one mile and a half an hour. The temperature at noon was 71.5° F. At the mouth of Long Creek, an insignificant affluent, the hills are covered with limestone and granite boulders; the north side is treeless like the vast prairie beyond it; the south side has aspens in the ravines and aspen groves in the prairie. The width of the valley remains uniform, never exceeding one mile and a quarter or less than one mile. The pasturage in the flats is superb, the grass long and very thickly set. Robins, magpies, and yellow birds enliven small aspen groves on the south side, or the thickets of cherry, mesaskotomina, dogwood and snowberry, which fill the hollows and ravines; the cat bird is also common and the tyrant fly-catcher everywhere. In the river are vast numbers of ducks and geese; the young birds frequently made us an excellent meal, but no four-footed animals were seen, with the exception of one prong horned antelope and one prairie hare.

In the afternoon of this day we made many miles by sailing before a strong east wind; notwithstanding a heavy rain and thunderstorm we were glad to push on through this seemingly interminable and now monotonous valley, as the air from the marshes on either side of the river was fetid and oppressive. A scramble to the summit of this steep hill bank, three hundred feet high, though very fatiguing, was amply repaid by the cool, pure and delightful breeze blowing over the desolate prairies around us. Roses of three different varieties, red, white and variegated, were numerous on the upland, and, in the morning, when the dew was on them, or at night when it was falling, the fresh air from above came down in puffs into our deep hot valley with delicious and invigorating fragrance. On the 4th day after our departure from the lakes we sighted the Grand Forks; leaving the canoe I hastened on to a point where the men with the carts and horses were to await our arrival, and found them safely encamped on a beautiful meadow anxiously looking for us. An empty cart and a couple of horses were despatched for the canoe still some miles below us, and in the evening we were joined by Mr. Fleming and the two voyageurs.

Soon after sunset our camp received an unexpected addition of six Plain Crees, who were on their way to Fort Ellice with dried buffalo meat and pemican. During the day the temperature of the River was found to be 74°. At the mouth of a dry bed of a stream which we called Maple Creek, some very old trees of the ash-leaved species were observed. Many of them showed marks where they had been tapped. The willows which fringed the banks of the Qu'Appelle were barked by ice eight feet above the surface of the water. Numerous buffalo tracks began to appear, and where these animals had crossed the river, they had cut deep roads to the water's edge, and lanes through the willow bushes. The bones of many a young bull and cow were seen sticking out of the banks where they had been mired.

The tortuous character of the stream before we took the canoe out of the water, may be imagined from the fact that eleven hours constant, steady tracking enabled us to progress only five miles in a straight line through the valley. Some little time was lost in crossing from one side to the other in order to avoid the willow bushes, which only grew on the inside of a bend, rarely or never on the outside or longest curve. The breadth of the river where we left it was forty feet, and the speed of its current one mile and a quarter an hour. The fetid air from the marshes made most of the party feel unwell, and I therefore determined to carry the canoe in a cart on the immediate edge of the prairie, keeping the valley in constant view, and occasionally descending into it and crossing it, to ascertain by levelling and measurement its leading dimensions.

No rock exposure has yet been seen. It appears that drift covers the country to a great depth. Where land slips have occurred and exposed an almost perpendicular section, the yellow gravelly clay is alone visible. Some of the limestone erratics strewed over the sides of the ravines resemble those frequently seen on the south-east side of Lake Winnipeg. Near our camp are six or seven log-houses, occasionally inhabited by *freemen* (that is, men no longer in the service of the Company,) during the winter months. The prairie above the freemen's houses slopes gently to the edge of the valley from the distant horizon on both sides. Clumps of aspen vary its monotonous aspect, and though clothed with green herbage, due to the late abundant rains, the soil is light and poor. Some distance back from the valley it is of better quality, the finer particles not having been washed out of it; the grass there is longer and more abundant, but the greatest drawback is the want of timber.

Since we have been on the Qu'Appelle we have frequently noticed thunderstorms towards the north-west and north, in the neighbourhood of the Touchwood Hill range, which did not reach us; the day before yesterday, (22nd July,) a very violent thunderstorm in the Qu'Appelle valley, which delayed us for several hours, did not wet the carts ten miles to the south. Rain clouds appear to follow the Touchwood Hill range; the frequency of storms in that region is proverbial, and the richness of the vegetation proves that an abundant supply of rain falls during the hot summer months. The Indians who visited our camp had been hunting between the two branches of the Saskatchewan—they represented the season as very dry and the buffalo scarce. We passed a quiet and friendly night with them, and on the following morning made them a small present and pursued our way to the Grand Forks.

I happened to be about 100 yards in advance of the carts, after we had travelled for about a quarter of an hour; when hearing a loud clatter of horses' feet behind me, on looking round I found the six Indians galloping up behind. One of them, who had represented himself as a chief, seized my bridle, drew the horse's head round, and motioned me to dismount. I replied by jerking my bridle



out of the Indian's hand. My people came up at this moment and asked in Cree what this interference meant. We wanted to have a little more talk, said the soi-disant chief. The real state of the case being, however, that they wished to establish a sort of toll of tobacco and tea for permission to pass through their country, threatening that if it were not given they would gather their friends in advance of us, and stop us by force. We knew that we should have to pass through about 100 tents, so there was some little meaning in the threat. The old hunter, however, who knew Indian habits and diplomacy well, at once remarked that we were taking a large present to the chief of the Sandy Hills, and we should not distribute any tobacco or tea until we had seen him, according to Indian custom. They tried a few more threats, but I closed the parley by unslinging a double-barrelled gun from the cart, and instructing the men to show quietly that they had theirs in readiness; wishing the rascals good day, we marched on; they sat on the ground, silently watching us, but made no sign. In the evening one of them passed near us at full gallop, towards some tents which we saw in the distance, as we ascended the hill at the Grand Forks. One rather significant statement they made proved to be correct, namely, that the Plain Crees, in council assembled, had last year "determined that in consequence of promises often made and broken by the white men and half-breeds, and the rapid destruction by them of the buffalo they fed on, they would not permit either white men or half-breeds to hunt in their country or travel through it, except for the purpose of trading for their dried meat, pemican, skins and robes."

We crossed to the north side of the Qu'Appelle when we arrived at the Grand Forks, and ascended the hill bank to the prairie. The Grand Forks consist of the junction of two deep, broad valleys; the south valley being that in which the Qu'Appelle river flows, the other is occupied by Long Lake, or Last Mountain Lake, forty miles in length, and from one-half to two miles broad, being in fact an exact counterpart of the Qu'Appelle Valley, narrow, deep, filled throughout with water, and inosculating with the South Branch of the Saskatchewan some miles below the Elbow. In its general aspect Last Mountain Lake is similar to the Fishing Lakes. A rapid, winding stream, 30 feet broad, runs from it into the Qu'Appelle. Both valleys are of uniform breadth and depth, and very little narrower than when united they form the main valley of the Qu'Appelle. From the Grand Forks to the Souris Forks (Elbow Bone Creek) the country is treeless, slightly undulating and poor. The Indians say that the Souris River of the Qu'Appelle, coming from the Grand Coteau de Missouri, inosculates with an arm of the Souris of the Assinniboiné before described, and a canoe in high water might pass from one river to the other without a portage. If this be the case, the diversion of the waters of the south branch down the Qu'Appelle Valley would acquire additional importance and give value to an immense extent of territory, now comparatively inaccessible, and destitute of water.

A few miles west of the Souris Forks the Qu'Appelle is nineteen feet wide and one and a half feet deep, but the great valley is still a mile broad and 200 feet deep. Here on the 25th we caught a glimpse of the blue outline of the Grand Coteau, with a treeless plain between us. After passing these Forks, the country is more undulating; small hills begin to show themselves; the general character of the soil is light and poor; the herbage consists of short tufted buffalo grass, and the plants common in dry arid plains. This afternoon we saw three fires spring up between us and the Grand Coteau. They were Indian signs, but whether they referred to the presence of buffalo, or whether they were designed to intimate to distant bands the arrival of suspicious strangers we could not then tell, and not knowing whether they were Crees, Assinniboinés, or Blackfeet, we became cautious. In a few days we ascertained that the fire had been put out\* by Crees, to inform their friends that they had found buffalo.

The grandeur of a prairie on fire belongs to itself. It is like a volcano in full activity, you cannot imitate it, because it is impossible to obtain those gigantic elements from which it derives its awful splendour. Fortunately, in the present instance the wind was from the west, and drove the fires in the opposite direction, and being south of us we could contemplate the magnificent spectacle without anxiety. One object in burning the prairie at this time, was to turn the buffalo; they had crossed the Saskatchewan in great numbers near the Elbow and were advancing towards us, and crossing the Qu'Appelle not far from the height of land. By burning the prairie east of their course they would be diverted to the south, and feed for a time on the Grand Coteau before they pursued their way to the Little Souris, in the country of the Sioux, south of the 49th parallel.

Putting out fire in the prairies is a telegraphic mode of communication frequently resorted to by Indians. Its consequences are seen in the destruction of the forests which once covered an immense area south of the Qu'Appelle and Assinniboiné. The aridity of those vast prairies is partly due to this cause. The soil, though light, derives much of its apparent sterility from the annual fires. In low places and in shallow depressions where marshes are formed in spring, the soil is rich, much mixed with vegetable matter, and supports a very luxuriant growth of grass. If willows and aspens were permitted to grow over the prairies, they would soon be converted into humid tracts in which vegetable matter would accumulate, and a soil adapted to forest trees be formed. If a portion of prairie escapes fire for two or three years the result is seen in the growth of willows and aspens, first in patches, then in large areas, which in a short time become united and cover the country; thus retarding evaporation and permitting the accumulation of vegetable matter in the soil. A fire comes, destroys the young forest growth and establishes a prairie once more. The reclamation of immense areas is not beyond human power. The extension of the prairies is evidently due to fires, and the fires are caused by Indians, chiefly for the purpose of telegraphic communication, or to divert the buffalo from the course they may be taking. These operations will cease as the Indians and buffalo diminish, events which are taking place with great rapidity.

Wood began to be a great treasure in the prairie after passing the Moose Jaws Forks; we were

\* A native expression, "put out fire," signifies to set the prairie on fire.

compelled to go supperless to bed on the night of the 24th, because we had neglected to take a supply at the last aspen grove we passed, thinking that the *bois de vache* (dried buffalo dung) would be found in abundance, but the fires had burned it also, and not even a fragment was to be procured. No tree or shrub, or even willow twig could be seen in any direction from our camp on the morning of the 26th. Our customary breakfast of tea and buffalo meat was impossible. We had to content ourselves with uncooked pemican and water from a marsh.

Immediately on the banks of the Qu'Appelle Valley here are the remains of ancient encampments, where the Plain Crees, in the day of their power and pride had erected large skin tents, and strengthened them with rings of stones placed round the base. These circular remains were 25 feet in diameter, the stones or boulders being about one foot in circumference. They wore the aspect of great antiquity, being partially covered with soil and grass. When this camp ground was occupied by the Crees, timber no doubt grew in the valley below, or on the prairie and ravines in detached groves, for their permanent camping grounds are always placed near a supply of fuel.

Making an early start in search of wood, we came suddenly upon four Cree tents, whose inmates were still fast asleep; about 300 yards west of them we found 10 more tents, with over 50 or 60 Indians in all. They were preparing to cross the valley in the direction of the Grand Coteau, following the buffalo. Their provisions for trade, such as dried meat and pemican, were drawn by dogs, each bag of pemican being supported upon two long poles, which are shaft, body, and wheels in one. Buffalo Pound Hill Lake, 32 miles long, begins near the Moose Jaws Forks, and on the opposite or south side of this long sheet of water we saw 18 tents and a large number of horses. The women in those we visited on our side of the valley and lake had collected a great quantity of the Mesaskotomina berry, which they were drying. They announced the cheering intelligence that the Chief Shortstick, with some 30 tents, was at the Sandy Hills impounding buffalo. Leaving the hospitable Crees, after an excellent breakfast on pounded meat and marrow fat, we arrived at Buffalo Pound Hill at noon. The whole country here assumed a different appearance; it now bore resemblance to a stormy sea suddenly become rigid; the hills were of gravel and very abrupt, but none exceeded 100 feet in height. The Coteau de Missouri is clearly seen from Buffalo Pound Hill towards the south, while north-easterly the Last Mountain of the Touchwood Hill Range looms gray or blue in the distance. Between these distant ranges a treeless plain intervenes.

The Grand Coteau runs parallel with the Missouri; its average breadth is 60 to 80 miles, and it rises from 400 to 800 feet above the bed of the great river it flanks, and between 400 to 800 feet above the high plains through which the Shayanne and James River meander to the Red River of the north and the Missouri.\* The vegetation on the Grand Coteau is very scanty, the Indian turnip is common, so also is a species of cactus; no tree or shrub is seen, and it is only in the bottoms and marshes that rank herbage is found.

Ponds and lakes are numerous on the Grand Coteau side, and it is probably on this account that the buffalo cross the Qu'Appelle Valley near the Moose Jaws Fork and west of Buffalo Pound Hill Lake; in the winter they keep towards the Touchwood Hills for the sake of shelter, and the excellent herbage which grows in the beautiful meadows between the aspen clumps. The prairies there too are not so often burned as south of the Qu'Appelle, the valley of that river serving as a great barrier to prevent the onward progress of the devastating fires. We began to find the fresh bones of buffalo very numerous on the ground, and here and there startled a pack of wolves feeding on a carcass which had been deprived of its tongue and hump only by the careless, thriftless Crees. Pelicans and ducks are seen in vast numbers on the lake, while on the high banks of the valley the remains of ancient encampments in the form of rings of stones to hold down the skin tents being everywhere visible, testify to the former numbers of the Plain Crees, and afford a sad evidence of the ancient power of the people who once held undisputed sway from the Missouri to the Saskatchewan. The remains of a race fast passing away give more than a transient interest to Buffalo Pound Hill Lake. The largest ancient encampment we saw lies near a shallow lake in the prairie about a mile from the Qu'Appelle valley. It is surrounded by a few low, sandy, and gravelly hills, and is quite screened from observation. It may have been a camping ground for centuries, as some circles of stones are partially covered with grass and imbedded in the soil.

At noon on the 26th we rested for a few hours opposite to a large camp of Crees on the other side of the lake; our sudden appearance at the edge of the prairie threw them into a state of the greatest excitement, as evinced by their haste in collecting their horses and gathering in groups in the valley below. A few of them set out to ride round the head of the lake, but in the wrong direction, so that the chance of their overtaking us was highly doubtful, as they would have to make a round of 30 miles in consequence of the intervening lake. This magnificent sheet of water, never less than half a mile broad and 16 miles long, shadowed forth what the Qu'Appelle valley might become if a river like the Saskatchewan could be made to flow through it. As we neared the height of land the physical structure of this great valley became a deeply interesting and almost exciting subject of enquiry. So far it had preserved its breadth and depth with astonishing uniformity all the way from the Mission, and we were within 40 miles of the south branch of the Saskatchewan. The hill banks of the river now become wooded again, ash-leaved maple and elm in the ravines, sustained, no doubt by the presence of so large a body of water as Buffalo Pound Hill Lake.

Towards evening we arrived at another Cree encampment, where we were again hospitably treated to beaten buffalo meat and marrow fat. Birch bark dishes full of that nutritious but not very tempting food was placed on the ground before us and we were requested to partake of it. The Indians took a piece of the pounded meat in their fingers and dipped it into the soft marrow; they were delighted to receive a small present of tea and tobacco, and while we were engaged in the tent

\* Explorations and Surveys for a railroad route from the Mississippi to the Pacific Ocean. Governor Stevens, page 87.



with the men, the girls, children, and old women came round our carts, asking if we had any rum, and snuffed the boxes and bags containing provisions, in search of that odoriferous stimulant. We left our hospitable friends in the evening and camped about three miles from the last Cree tent. The chief of the band, an old man, expressed very kindly feelings towards us, and hinted that it would be as well to keep a watch over our horses during the night, for there were some young scamps among his band who would think it an honour to steal a white man's horse. Visitors came during the evening, and from their actions we thought it advisable to keep watch and tether the horses; observing these precautions they retired at an early hour after a friendly smoke.

At dawn on the following morning we were *en route* again, and towards noon approached the Sandy Hills, the valley continuing about 140 feet deep and maintaining its width. Two days before our arrival the Indians had been running buffalo, and many carcasses of these animals were scattered over the arid, treeless prairie through which our route lay. Several herds of buffalo were visible, wending their way in single file to the Grand Coteau de Missouri distinctly looming south of the Qu'Appelle Valley. After travelling through a dry, barren region, strewn with erratics until two p.m., we arrived at the Lake of the Sandy Hills, and on the opposite side of the valley saw a number of tents with many horses feeding in the flats. When within a mile of the lake a buffalo bull suddenly appeared upon the brow of a little hill on our right. A finer sight of its kind could hardly be imagined. The animal was in his prime and a magnificent specimen of the buffalo. He gazed at us through the long hair which hung over his eyes in thick profusion, pawed the ground, tossed his head, and snorted with proud disdain. He was not more than fifty yards from us, and while we were admiring his splendid proportions he set off at a gallop towards some low hills we had just passed over.

Our appearance on the brink of the valley opposite the tents surprised the Indians; they quickly caught their horses, and about twenty galloped across the valley, here quite dry, and in a quarter of an hour were seated in friendly chat with the half-breeds. We kindled a fire with *bois de vache*, of which there was a vast quantity strewn over the plain, but no wood was near at hand. When the men were going to the lake for water to make some tea the Indians told us it was salt, and that the only fresh water within a distance of some miles was close to their camp on the opposite side of the valley. We were therefore constrained to cross to the other side and erect our tents near to the spring. Advantage was taken of our passage across the valley to make an instrumental measurement of its leading dimensions. It was found to be 140 feet deep, estimating from the abrupt edge of the bank, and one mile five chains broad. The depth below the general level of the prairie is considerably greater, for there was a descent of fifty or sixty feet by a gentle slope not included in the foregoing measurement. A vast number of erratics strewn this slope; indeed it was with great difficulty that we steered the carts through the formidable accumulation of boulders which beset our path. The bed of the Qu'Appelle is quite visible in the valley, but on account of the porous nature of the soil the overflow from Sand Hill Lake penetrates it in dry weather, and reappears about half a mile below in the form of a little stream about ten feet broad, issuing from a marshy tract occupying the entire breadth of the valley. In crossing the carts and horses sank deeply in the soft grassy bottom, already much cut up by the passing of a large number of buffalo during the week preceding our arrival.

Sand Hill Lake is four and a half miles long, very shallow, and contains water strongly impregnated with Epsom salts and common salt. We made ourselves acceptable to the Indians by making them a present of powder, shot, tea, and tobacco, and in return they invited us to partake of pounded meat, marrowfat and berries. The chief of the band assured us that his young men were honest and trustworthy, and in compliance with his instructions property would be perfectly safe. During the night a heavy rain filled the hollows with water and gave us promise of an abundant supply until we arrived at the Sandy Hills where the main body of Plain Crees were encamped. On the following day, the 28th, I rode to the Eye-brow Hill range, a prolongation of the Grand Coteau, and distant from the Qu'Appelle Valley about four miles. It was there that the Indians told us we should find one of the sources of the Qu'Appelle river. After an hour's ride I reached the hills and quickly came upon a deep ravine at the bottom of which bubbled a little stream about three feet broad. I followed its course until it entered the prairie leading to the Great Valley, and traced it to its junction with the main excavation, through a deep narrow gully.

The Eye-brow Hill range is about 150 feet above the prairie, and forms the flank of a table land stretching to the Grand Coteau, of which it is the western extension. The recent tracks of buffalo were countless on the hill sides, and in the distance several herds could be seen feeding on the treeless plateau to the south. In the afternoon we bade farewell to our Cree friends and travelled west on the south side of Sand Hill Lake until we arrived at the gully through which the stream from the Eye-brow hill range entered the Qu'Appelle Valley. It was here nine feet broad and three deep, having received accessions in a short course through the prairie from the hills where I had observed it scarcely three feet broad. We camped in the valley and employed the evening in taking levels.

About four miles west of us we saw the Sandy Hills and could discern the Great Valley passing through them, and containing, as the Indians had alleged, ponds which sent water both to the South Branch and the Assinniboine, an important physical fact which we afterwards verified instrumentally and by optical proof. We found the streamlet from the Eye-brow Hill range strike the Qu'Appelle Valley eight and a half miles west of Sand Hill Lake, and four miles from the height of land where the ponds lie. The fall between the ponds and our camp was about five feet, and the valley 150 feet deep, and one mile seventy chains broad. The Eye-brow Hill stream had excavated a channel nine feet deep in the bottom of the Great Valley, and was joined by a sluggish brook coming from the ponds a few yards from our camp. Water marks on the hill banks showed that the entire breadth of the valley is flooded during spring.

The Sand Hills commence on the north side about two miles west of Sand Hill Lake as it appears in summer. They are drifting dunes, and many of them present a clear ripple-marked surface without

any vegetation, not even a blade of grass. They have invaded the Great Valley and materially lessened its depth. One feature in its banks is worthy of special notice. Many boulders or erratics are distributed over the west extremity of small hills or ridges into which the steep banks are broken, seventy to one hundred and twenty feet above the level of the flats. These ridges have the form of long, narrow islands, their longitudinal axes being parallel to the sides of the valley, and the erratics are deposited and arranged on the top of each ridge and at their western extremities. The form of these ridges is also peculiar; they are sharp at the west end where the erratics lie, and rounded at the east end. The slope is gentle at the west end, abrupt at the east end. This peculiarity is a constant feature of all the ridges seen on the sides of the banks of the valley. They vary in height from 10 to 30 feet, and in length from 60 to 140 feet, and in breadth from 20 to 80 feet. They have evidently some relation to the excavating force which has produced this great valley, and cannot be attributed to the long continued action of a small stream; however competent running water may be to produce deep and long depressions in loose drift, or a soft friable rock. (*See woodcut on page 65.*)

A section of the bank of the Eyebrow Hill stream, on its course through the flats, showed fine clay brought by recent rains from the hill banks, sand blown from the dunes, and loam produced by the blending of the two. Where it leaves the prairie the little river has exposed a section of a drift hill ten feet above the level of the flats, which reposes upon an ochreous stratified rock, seamed with veins of selenite. It exhibits yellow and red ferruginous clay, about six feet thick, and below it is a hard, greenish sandstone, in which gigantic concretionary masses are numerous. Veins of selenite penetrate the greenish coloured rock, but are most abundant in the ferruginous clay. This is the first rock seen in position above the Mission.

On the morning of Thursday, 29th, we prepared to visit the main body of the Crees at the Sandy Hills, and, with a view to secure a favourable reception, sent a messenger to announce our arrival, and to express a wish to see Shortstick, the chief of the Sandy Hills. Soon after breakfast we crossed the valley and entered the Sand dunes; one which we measured was seventy feet high, quite steep on one side, beautifully ripple-marked by the wind, and crescent-shaped. Sand dunes are on both sides of the valley. From the summit we saw the woods and hills beyond the south branch of the Saskatchewan, and, what was more delightful to us, traced with the eye the Qu'Appelle valley with undiminished depth and breadth through the Sandy Hills, until it was lost as it dipped towards the south branch.

At 8 o'clock, a.m., we came in sight of the Cree camp, and soon afterwards messengers arrived from Shortstick, in reply to the announcement of our arrival, expressing a hope that we would delay our approach until they had moved their camp half-a-mile further west, where the odour of the putrid buffalo would be less annoying. We employed the time in ascertaining the exact position of the height of land, and soon found a pond from which we observed water flowing to the Saskatchewan and Assiniboine. The pond was fed by a number of springs and small streams a foot or two broad, issuing from the Sandy Hills, on both sides, at right angles to the valley. We selected this spot to level across the valley, and found its depth to be 110 feet below the first plateau; its breadth, although partially invaded by sand dunes, seventy-three chains, or nearly one mile. Here we commenced taking the levels



TRANSVERSE SECTION OF THE VALLEY OF THE QU'APPELLE AT THE HEIGHT OF LAND.

(Horizontal Scale, 16 chains to an inch; Vertical Scale, 200 feet to an inch.)

to the South Branch, twelve miles distant from us, an operation which we soon found necessary to close for the present, in consequence of the arrival of about sixty Cree horsemen, many of them naked, with exception of the breech-cloth and belt. They were accompanied by the chief's son, who informed us that in an hour's time they would escort us to the camp. They were about constructing a new pound, having literally filled an old one with buffalo, and being compelled to abandon it on account of the stench which arose from the putrifying bodies. We sat on the ground and smoked until they thought it time for us to accompany them to their encampment. Shortstick had hurried away to make preparations for bringing in the buffalo, the new pound being nearly ready. He expressed through his son a wish that we should see them entrap the buffalo in this pound, a rare opportunity few would be willing to lose.

We passed through the camp to a place which the chief's son pointed out, and there erected our tents. The women were still employed in moving the camp, being assisted in the operation by large numbers of dogs, each dog having two poles harnessed to him, on which his little load of meat, or pemican, or camp furniture was laid. After another smoke, the chief's son asked me, through the interpreter, if I would like to see the old buffalo pound, in which they had been entrapping buffalo during the past week. With a ready compliance I accompanied the guide to a little valley between sand-hills, through a lane of branches of trees, which are called "dead men," to the gate or trap of the pound. A sight most horrible and disgusting broke upon us as we ascended a sand dune overhanging the little dell in which the pound was built. Within a circular fence, 120 feet broad, constructed of the trunks of trees, laced with withes together, and braced by outside supports, lay tossed in every conceivable position over 200 dead buffalo. From old bulls to calves of three months old, animals of every age were huddled together in all the forced attitudes of violent death. Some lay on their backs, with eyes starting from their heads, and tongues thrust out through clotted gore. Others were impaled on



the horns of the old and strong bulls. Others again which had been tossed were lying with broken backs two and three deep. One little calf hung suspended on the horns of a bull which had impaled it in the wild race round and round the pound.

The Indians looked upon the dreadful and sickening scene with evident delight, and told how such and such a bull or cow had exhibited feats of wonderful strength in the death struggle. The flesh of many of the cows had been taken from them, and was drying in the sun on stages near the tents. It is needless to say that the stench was overpowering, and millions of large blue flesh-flies humming and buzzing over the putrifying bodies was not the least disgusting part of the spectacle. At my request the chief's son jumped into the pound, and with a small axe knocked off half a dozen pair of horns, which I wished to preserve in memory of this terrible slaughter. "To-morrow," said my companion, "you shall see us bring in the buffalo to the new pound."

After the first run, ten days before our arrival, the Indians had driven about 200 buffalo into the enclosure, and were still urging on the remainder of the herd, when one wary old bull, espying a narrow crevice which had not been closed by the robes of those on the outside, whose duty it was to conceal every orifice, made a dash and broke the fence; the whole body then ran helter-skelter through the gap, and, dispersing among the sand dunes, escaped, with the exception of eight, who were speared or shot with arrows, as they passed in their mad career. In all, 240 animals had been killed in the pound, and it was its offensive condition which led the reckless and wasteful savages to construct a new one. This was formed in a pretty dell between sand hills about half a mile from the first, and leading from it in two diverging rows, the bushes they designate dead men, and which serve to guide the buffalo when at full speed, were arranged. The dead men extended a distance of four miles into the prairie, west of and beyond the Sand Hills. They were placed about fifty feet apart, and between the extremity of the rows might be a distance of from one and a half to two miles.

When the skilled hunters are about to bring in a herd of buffalo from the prairie, they direct the course of the gallop of the alarmed animals by confederates stationed in hollows or small depressions, who when the buffalo appear inclined to take a direction leading from the space marked out by the dead men, show themselves for a moment and wave their robes, immediately however hiding again. This serves to turn the buffalo slightly in another direction; and when the animals having arrived between the rows of dead men, endeavour to pass through them, Indians here and there stationed behind a dead man, go through the same operation, and thus keep the animals within the narrowing limits of the converging lines. At the entrance to the pound there is a strong trunk of a tree placed about one foot from the ground, and on the inner side a shallow excavation is made, sufficiently deep, however, to prevent the buffalo from leaping back when once in the pound. As soon as the animals have taken the fatal spring they begin to gallop round and round the ring fence looking for a chance of escape, but with the utmost silence the women and children on the outside hold their robes before every orifice until the whole herd is brought in. They then climb to the top of the fence, and with the hunters who have followed closely in the rear of the buffalo, spear or shoot with bows and arrows or firearms at the bewildered animals, rapidly becoming mad with rage and terror, within the narrow limits of the pound. It is then that a dreadful scene of confusion and slaughter begins, the oldest and strongest animals crush and toss the weaker; the shouts and screams of the excited Indians rise above the roaring of the bulls, the bellowing of the cows and the piteous moaning of the calves. The dying struggles of so many strong, full grown animals crowded together, furnish a revolting and terrible picture, but with occasional displays of wonderful brute strength and rage; while man in his savage, untutored and heathen state shows both in deed and expression how little he is superior to the noble beasts he so wantonly and cruelly destroys.

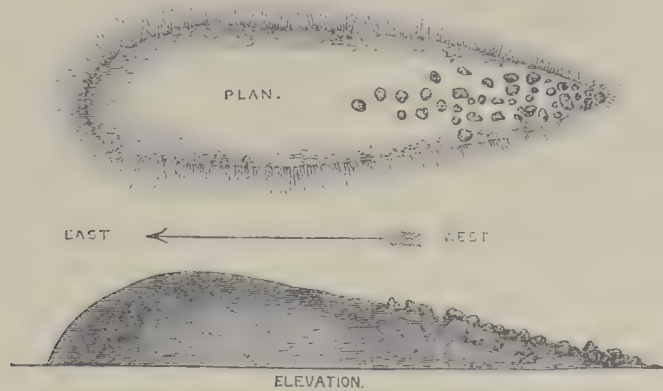
Shortstick is about 50 years old, of low stature, but very powerfully built. His arms and breast were deeply marked with scars and gashes, records of grief and mourning for departed friends. His son's body was painted with blue bars across his chest and arms. The only clothing they wore consisted of dressed elk or buffalo hide, and the breech cloth; this robe was often cast off the shoulders and drawn over the knees when in a sitting posture; they wore no covering on the head, their long hair was plaited or tied in knots, or hung loose over their shoulders and back. The forms of some of the young men were faultless, of the older men bony and wiry, and of the aged men, in one instance at least, a living skeleton. I enquired the age of an extremely old fellow who asked me for medicine to cure a pain in his chest; he replied he was a strong man when the two Companies (the Hudson's Bay and the North-West) were trading with his tribe very many summers ago. He remembers the time when his people were as numerous as the buffalo are now, and the buffalo thick as trees in the forest. The half-breeds thought he was more than 100 years old. Shortstick accepted the presents of tea, tobacco, bullets, powder and blankets I made him with marked satisfaction, and expressed a wish to learn the object of our visit. We held a "talk" in my tent, during which the chief expressed himself freely on various subjects, and listened with the utmost attention to the speeches of the Indians he had summoned to attend the Council.

All speakers objected strongly to the half-breeds' hunting buffalo during the winter in the Plain Cree country. They had no objection to trade with them or with white people, but they insisted that all strangers should purchase dried meat or pemican and not hunt for themselves.

They urged strong objections against the Hudson's Bay Company encroaching upon the prairies and driving away the buffalo. They would be glad to see them establish as many posts as they chose on the edge of the prairie country, but they did not like to see the plains invaded. During the existence of the two companies, all went well with the Indians; they obtained excellent pay and could sell all their meat and pemican. Since the union of the companies they had not fared half so well, had received bad pay for their provisions, and were growing poorer, and weaker, and more miserable year by year. The buffalo were fast disappearing before the encroachments of the white men, and although they acknowledge the value of firearms they thought they were better off in old times, when they had only bows and spears, and wild animals were numerous. I asked Shortstick to name the articles he

would like to have if I came into his country again. He asked for tea, a horse of English breed, a cart, a gun, a supply of powder and ball, knives, tobacco, a medal with a chain, a flag, a suit of fine clothes, and rum. The talk lasted between six and seven hours, the greater portion of the time being taken up in interpreting, sentence by sentence, the speeches of each man in turn. They generally commenced with the creation, giving a short history of that event in most general terms, and after a few flourishes about equality of origin, descended suddenly to buffalo, half-breeds, the H. B. Company, tobacco, and rum.

Early on the morning of the 30th I retraced my steps to examine an exposure of cretaceous rock, forming part of the bank at the summit level of the Qu'Appelle valley, while Mr. Fleming continued taking the levels to the South Branch. (See Section, p. 63.) The rock is a sandstone, dipping very slightly to the south-west. The length of the exposure is about 50 yards, east and west; it is covered with drifting sand. Near the summit the layers are highly fossiliferous, and almost wholly composed of *Avicula Linguaformis* (Evans and Shuard): above and below the fossiliferous portion there is a coarse greenish coloured sand, interstratified with brown ferruginous layers. The thickness visible is about 12 feet. The rock occurs at the bend of the valley at its summit level; the exposure is perpendicular, and about 60 feet above the bottom of the valley. Some of the beds, those which are unfossiliferous, are very soft and friable, easily disintegrating, and may, farther west, be the origin of the sand dunes distributed over so wide an area in this part of the country. In descending the slope from the summit level to the Saskatchewan, the boulders on the ridges in the valley were found to be generally deposited upon the west side. The inclination of the boulders was towards the east, those forming the upper stratum were inclined against or superimposed upon the west side of those beneath, leading to the inference that the current which directed the course of ice which bore them, came here, as on the other side of the summit level in the valley, *from the west*.



RIDGES, WITH BOULDERS, ON THE EAST AND WEST SIDE OF THE HEIGHT OF LAND IN THE QU'APPELLE VALLEY.

About fourteen miles from the Saskatchewan there is a gigantic erratic of unfossiliferous rock on the south side of the valley. It is seventy-nine feet in horizontal circumference, three feet from the ground, and a tape stretched across the exposed portion from side to side over the highest point measured 46 feet. The Indians place on it offerings to Manitou, and at the time of our visit it contained beads, bits of tobacco, fragments of cloth and other trifles.

At noon I bade farewell to Shortstick, and joining the carts we wended our way by the side of "the River that Turns," occupying the continuation of the Qu'Appelle Valley, to the South Branch of the Saskatchewan. The carts were accompanied by several Indians who watched with much curiosity the progress of taking the levels, and were very anxious to know what "medicine" I was searching for when sketching the position of the erratics in the valley.

Now and then a fine buffalo bull would appear at the brow of the hill forming the boundary of the prairie, gaze at us for a few minutes and gallop off. The buffalo were crossing the South Branch a few miles below us in great numbers, and at night, by putting the ear to the ground, we could hear them bellowing. Towards evening we all arrived at the South Branch, built a fire, gummed the canoe, which had been sadly damaged by a journey of 700 miles across the prairies, and hastened to make a distribution of the supplies for a canoe voyage down that splendid river. We were not anxious to camp at the mouth of "the River that Turns," in consequence of a war party of Blackfeet who were said to be in the neighbourhood of the Cree Camp, watching for an opportunity to steal horses, and if possible to "lift a scalp."

The Indians who had accompanied us hastened to join their friends as soon as they saw the canoe in the water; and just as the sun set, the canoe containing Mr. Fleming and myself, with two half breeds, pushed off from the shore. The rest of the party, with the carts and horses in charge of the old hunter, retired from the river to camp in the open prairie, where they would be able to guard against a surprise by the Blackfeet, or the thieving propensities of treacherous Crees. Great precautions were undoubtedly necessary, as sure signs had been observed within three miles of the Sandy Hills, proving that a war party of Blackfeet were skulking about. The Crees, always accustomed when on the South Branch to their attacks, merely adopted the precaution of posting watches on the highest dunes, about a mile from the camp, and it was owing to the advice of Shortstick that we embarked so late in the evening in our canoe. We drifted a mile or two down the river until we came to a precipitous cliff showing a fine exposure of rock, which proved a temptation too great to be resisted, so we drew the canoe on the bank and camped for the night on the east side of the river making arrangements to watch in turns.



The first view of the South Branch of the Saskatchewan, fully six hundred miles from the point where the main river disembogues into Lake Winnipeg, filled me with astonishment and admiration. We stood on the banks of a river of the first class, nearly half a mile broad, and flowing with a swift current, not more than three hundred and fifty miles from the Rocky Mountains, where it takes its rise. We had reached this river by traversing either within it or on its banks, for a distance of two hundred and seventy miles, a narrow deep excavation continuous from the valley of one great river to that of another, and exhibiting in many features evidences of an excavating force far greater than the little Qu'Appelle which meandered through it, was at the first blush, thought capable of creating. How were the deep lakes hollowed out? lakes filling the breadth of the valley, but during the lapse of ages not having increased in breadth, preserving too, for many miles, such remarkable depths, and although in some instances far removed from one another, yet maintaining those depths with striking uniformity. What could be the nature of the eroding force which dug out narrow basins fifty-four to sixty-six feet deep at the bottom of a valley already 300 feet below the slightly undulating prairies, and rarely exceeding one mile in breadth? It was easy to understand how a small river like the Qu'Appelle could gradually excavate a valley a mile broad and three hundred feet deep. The vast prairies of the North-West offer many such instances; the little Souris River, for example, in passing through the Blue Hills; the Assinniboine, for a hundred and fifty miles, flows through a broad deep valley, evidently excavated by its waters; the rivers in western Canada often flow in deep eroded valleys; but in no instance to my knowledge are deep and long lakes known to occupy a river valley where the attitude and character of the rocks preclude the assumption that they may have been occasioned by falls, without having increased its width by the action of their waves on the banks or without leaving some traces of the force which had excavated them. It was certainly with mingled feelings of anxiety and pleasurable anticipation that we embarked on the broad Saskatchewan, hoping during our long journey down its swift stream to find some clue to the origin of the curious inosculating valley of the Qu'Appelle we had traced from one watershed to another.

LEADING DIMENSIONS OF THE QU'APPELLE OR CALLING RIVER VALLEY, AND OF THE LAKES WHICH OCCUPY IT.

Table showing the length, with the breadth and depth, of the Qu'Appelle Valley at different points.

										Miles.	Chains.
Length of Valley from the South Branch of the Saskatchewan to the Assinniboine										269	0
Breadth of Valley 70 miles from the Assinniboine										0	78*
Do.	do.	177	do.	do.	-	-	-	-	-	1	30
Do.	do.	239	do.	do.	-	-	-	-	-	1	5
Do.	do.	253	do.	do.	-	-	-	-	-	1	70
Do.	do.	258	do.	do.	-	-	-	-	-	0	73†
At its junction with the Assinniboine its breadth exceeds one mile.											
At its junction with the Saskatchewan its breadth exceeds one mile and a quarter.											
Depth of the Valley 70 miles from the Assinniboine										Feet.	
Do.	do.	177	do.	do.	-	-	-	-	-	-	320
Do.	do.	230	do.	do.	-	-	-	-	-	-	250
Do.	do.	253	do.	do.	-	-	-	-	-	-	220
Do.	do.	258	do.	do.	-	-	-	-	-	-	140
Do.	do.	258	do.	do.	-	-	-	-	-	-	110
At the junction with the Assinniboine the prairie slopes to the Valley of that river, and its depth here is										-	240
At its junction with the Saskatchewan the prairie also slopes to the Valley of the Saskatchewan, and its depth was estimated to be										-	140

Table showing the length, breadth, mean depth, greatest depth, and distance from the Assinniboine of the Lakes in the Qu'Appelle Valley.

Name of Lake.	Length.	Breadth.	Depth.		Distance from Mouth.
			Mean.	Gr.	
	m. ch.	Chains.	Feet.	Feet.	m. ch.
Round Lake, or Ka-wah-wi-ya-ka-mac	4 56	60	28	30	41 20
Crooked Lake, or Ka-wa-wa-ki-ka-mac	6 10	60	31	42	56 0
Fishing Lake, No. 1, or Pa-ki-ta-wi-win	6 0	40	52	66	108 0
" " No. 2,	3 25	40	32	48	114 20
" " No. 3,	4 30	60	41	57	119 20
" " No. 4,	8 50	60	37	54	124 12
Long Lake	-	60 as far as seen.	-	-	168 0
Buffalo Pound-hill Lake	16 0	40	-	-	194 20
Sandhill Lake	4 50	45	-	-	239 50
Total length of the Lakes	53 61				

NOTE.—The breadths and depths are the means of several measurements. The distances are taken along the centre of the Valley.

\* One mile less 44 yards.

† One mile less 154 yards.

## CHAPTER IV.

FROM THE QU'APPELLE MISSION TO FORT ELLICE, DOWN THE QU'APPELLE RIVER.

The Second Fishing Lake—Depth of—Indian Map—Origin of name Qu'Appelle, or "Who calls River"—The First Lake, or Pakitawiwin—Great depth of First Lake—Fish—*Confervæ*—Depth of Valley—Width of River—High Water mark—Valley flooded—Affluents—Depth of Valley—Crooked Lake, or Ka-wa-wa-ti-ka-mac—Dimensions of—Effects of Fires—Trees in Valley—Boulders—Character of the Country—Indian Surprise—Indians—Sumner berry Creek—Dimensions of Valley—Valley and Prairie Scenery—Camp Scene—Character of Valley—Ka-wah-wi-ya-ka-mac, or Round Lake—Dimensions of—Stony Barrier—Granite Boulders—Little Cut-arm Creek—The Scissors Creek—Rock exposure—Grasshoppers—Big Cut-arm Creek—Dimensions of Qu'Appelle—Flooding of Valley—Timber—Undergrowth—Birds—Minks—Deer—Uniformity of Qu'Appelle Valley.

## MR. DICKINSON'S NARRATIVE.

DEAR SIR,

Soon after parting from you on the morning of July 20th, at the Church of England Mission in the Qu'Appelle Valley, my instruments for surveying, with watch, a magnetic compass, a log line and sounding line, all arranged for ready use, and a cargo of kettles, pans, pemican, and blankets stowed away, our little canoe commenced its voyage down the river. In half an hour we reached the lake, which is generally called the second of the Fishing Lakes. Before venturing to go down it we were obliged to stop for the purpose of gunning the canoe, as it was leaking more than was desirable. To save time we took breakfast here. The distance between this lake and the one at the Mission is  $1\frac{1}{2}$  miles, while the actual length of the river is upwards of two miles. Its width averages 80 feet, and its depth three feet; the rate of current, which is nearly uniform throughout its length, is one mile per hour. The difference of level between these two lakes, obtained instrumentally on a previous day, is 1.50 feet. These measurements, not valuable in themselves, are taken for the purposes explained in the "Rules for conducting the Exploring Survey," namely, as the means for calculating approximately the total fall in the river. I may mention that at every opportunity similar measurements and observations were made, with the assistance of Mr. John Fleming, from which we were able to deduce some general laws for guiding us in estimating the fall in rivers. I may mention also, as it has not often been used before, I think, on similar surveys, that the log line was found to be most invaluable in ascertaining the rate of the canoe on the rivers as well as on the lakes, being a much more accurate way than that of estimating it by the eye.

The canoe being now declared to be sea worthy, we started on our way again. The lake is  $3\frac{1}{4}$  miles long and three-quarters of a mile in breadth, extending between the slopes of the valley, and appearing to be merely an expansion of the river, but on trial found to be something more than that. For some distance out from the mouth of the river it is only from three to four feet deep, but on trying it when we were about half a mile distant with a sounding line 30 feet long, to my great surprise I could find no bottom; having added more line, the depth proved to be 42 feet. About the middle of the lake the depth is 48 feet.

A stream a quarter of a mile in length, flowing sluggishly through a marsh, connects this lake with the next, the first of the Fishing Lakes, or as it is in Cree, *Pakitawiwin*. All the Indian names of the lakes and tributaries of the Qu'Appelle I got afterwards on my arrival at Fort Ellice, from an old Indian 70 years of age, who had been once upon a time a great hunter and warrior, now in peace and comfort spending his remaining days at the hospitable Fort. With a piece of charred wood he drew on the floor a map of the Qu'Appelle Valley from the Fishing Lakes to the Assiniboine, showing every little creek so accurately that I easily recognised them. Mr. McKay, who was then in charge of the Fort, kindly acted as interpreter on the occasion. The Cree name of the Qu'Appelle river is *Katapaywie sepi*, and this is the origin of the name as told me by the Indian:—A solitary Indian was coming down the river in his canoe many summers ago, when one day he heard a loud voice calling to him; he stopped and listened and again heard the same voice as before. He shouted in reply, but there was no answer. He searched everywhere around, but could not find the tracks of any one. So from that time forth it was named the "Who Calls River."

*Pakitawiwin* is six miles long and half a mile wide, and is most wonderfully deep. In one place, by means of putting together various pieces of cord, sashes, &c., the sounding line being too short, the depth was found to be about 66 feet. The mean of several depths is 52 feet. It is famous for the quantity and quality of its fish. For three miles we passed through a dense decaying mass of *confervæ*, which an east wind had driven to the upper parts of the lake. The smell of it was most unpleasant; the men pushed through it as hard as they could, no easy matter, as it impeded the progress of the canoe considerably. The valley here is about the same depth as it is at the Mission, but the slopes are not so precipitous; one of them, that on the south side, has been the whole way covered with a dense growth of young aspens, and the other has been bare of trees except in some of its many hollows and ravines.

Leaving the lake we now descend the river at an average speed of four miles an hour, the rate of current being generally about one mile and a quarter per hour. Paddling was easy work, but the



steering by no means so, for the bends of the river are innumerable and very sharp, and the waters sweep round them with great velocity; oftentimes, but for the strong and dexterous arm of the steersman, the canoe would have been dashed against the bank, as it was he could not avoid sometimes getting entangled among the overhanging branches of the willows. The width varies from one chain to one and a half, and the depth from four and a half to two feet. The bed for the most part consists of soft mud and is quite free from boulders, as is the case the whole way to the mouth, excepting in one place to be mentioned hereafter. The high-water mark, very apparent on the willows growing along the banks, was eight feet over the present level of the water; the whole bottom of the valley, I was told, is often flooded to a depth of three feet.

Nineteen small creeks flow into this portion of the river, two only of them having names, the first and second Pheasant Creeks, called in Cree *Akiskoowi sepeis*, named after a hill which lies to the north some miles away, from near which they both take their rise. I took a cross section of the valley here, and found it to be 320 feet deep and 78 chains wide; it is, I think, the deepest part of it. At noon, on July 23rd, we reached Crooked Lake, called in Cree *Kawawak-kamac*, the most picturesque of the Qu'Appelle Lakes. Several streams draining the prairies on both sides have excavated deep and wide gorges opening into the main valley, which here sweeps in graceful curves, so that Crooked Lake seems to be embosomed amongst hills, and thus differs from the others which have very much the appearance of a gigantic canal. It is a little more than six miles in length, and its mean width is three quarters of a mile. The greatest depth I found was 36 feet, and the mean of several soundings was 31 feet. The south slope, as before, is clothed with a dense foliage of young aspens, willows, and dogwood; a great contrast to the opposite side, on which only grows short and scanty grass, leaving the granite boulders which lie scattered over it, exposed to view; only in the ravines and the deep hollows are seen patches of young aspens and straggling oaks which have escaped the devastating fires.

For some time I could not understand why one side should be covered with trees and the other quite bare, the soil on both being exactly similar, until I discovered unmistakeable evidences of fire, which may be the cause of it. On enquiry afterwards I found that Indians often travel along the valley on the north of the river, which accounts for the fires being on that side.

Between the gravelly beach and the first of the slopes a fringe of willows runs all round the lake, and several points of low land jut out on both sides, on which grow oak, elm, and ash; not very large trees certainly, but healthy and thriving looking, and giving additional beauty to the landscape.

I ascended a bluff on the north side by a well-worn deer path, on which there were many foot-marks quite fresh, for the purpose of taking some observations connected with the survey, and seeing the nature of the surrounding country. A gently undulating prairie, dotted with clumps of small poplars and willows, stretched away on every side, and as far as I could see, the soil was a light sandy and gravelly loam, and in many parts strewn with boulders. I rather think that such is the character of a considerable extent of this section of the country.

As I stood upon the summit of the bluff, looking down upon the glittering lake 300 feet below, and across the boundless plains, no living thing in view, no sound of life anywhere, I thought of the time to come when will be seen passing swiftly along the distant horizon the white cloud of the locomotive on its way from the Atlantic to the Pacific, and when the valley will resound with the merry voices of those who have come from the busy city on the banks of Red River to see the beautiful lakes of the Qu'Appelle. The view down the valley, where the river after issuing from the lake commences again its strange contortions, was doubtless very pretty, but it shewed too the trouble that was before me, that there would be no rest for eye or finger, such as I had when taking long straight courses on the lake.

Again re-seated in the canoe, we soon passed out of the lake into the river, the current of which for some distance is very strong and rapid, about  $2\frac{1}{2}$  miles per hour, according to the log line, and the width averages 70 feet, and the depth 3 ft. 6 in. A little way down it, as we swiftly and noiselessly glided round a sudden bend, we were borne by the current very close indeed to a group of Indian women who were enjoying the pleasures of a bath, quite as much to our astonishment as to theirs. First a loud chorus of screams arose, and then there was a rushing about for blankets and other apparel, which they adjusted with most wonderful rapidity, and then away they scampered to their wigwams laughing heartily as they went. Presently men and boys came trooping down to us simply arrayed in blankets, some worn in rather a *negligé* fashion, for the day was very hot. The chief man of the party, which consisted of six families, invited me in the most polite and hospitable manner to go to his lodge and have something to eat; but I had to decline as he told me previously, in answer to a question as to how many days' journey it was to Fort Ellice, that we would have to sleep four or five times before we reached it, and this was now our fourth day from the mission; and, moreover, I thought that the interior of a wigwam would not be a very agreeable place on such a hot day.

While we were speaking, the young ladies whom we had so unintentionally disturbed, came down one by one to see us. Although their toilets were quite completed, so very modest were they, that they remained behind the bushes and peeped at us through the branches. Having given the men some tobacco, and receiving in return a large supply of Pembina berries (high-bush cranberries), we wished them good-bye and resumed our journey. We went at the average rate of four miles an hour, for two hours and a half, and camped before sunset at the foot of a bluff on the south side of the valley, of which I had taken a bearing from the end of the lake, and close to a creek about ten feet wide, called Nipimenan sepeis, or summer berry creek.

The valley is here of the same breadth as heretofore, that is, about one mile, and its depth is from 250 to 300 feet. The bottom is covered with willows, interspersed with young sugar maples, with

here and there an open patch of long luxuriant grass. With some difficulty I made my way to the level of the prairie, through a dense and tangled mass of aspens and underwood of willows, dogwood, and rose trees; but the beauty of the glorious sunset, and the cool refreshing breeze that came across the plains more than repaid the trouble. I need not try to describe the exceeding beauty of the scene, for I could not; I will merely state what the components of the picture were. The sun just merged from behind a bank of crimson clouds reflected in the waters of Crooked Lake, part of the valley in deep shade and part brightly illuminated. The vivid green of the young poplars on one side, and on the other large granite boulders lying on the bare and rugged surface of the slope. The blue smoke of the wigwams rising up high and straight from the bottom of the valley. The river, with its complicated coils, gliding among the willow bushes. To the south, the great prairie, ocean-like, with its many islands of poplars and single trees, looking in the distance, and by twilight, like becalmed ships. As this view just dissolves away, another arises very pleasant to see,—our camp fire is now burning brightly below, and over it swings a kettle, and passing round and about it are my two men, one busily engaged in preparing supper, the other in spreading out the blankets on the ground between the fire and the canoe.

Next morning (24th) we started as soon as it was daylight, glad to escape from our insatiated tormentors, the mosquitoes and black flies, that would not let us rest or sleep all night. While at breakfast at 8 o'clock, a great thunderstorm from the south-west came upon us. Having thrown an end of the tarpauling over the canoe, and resting the other end on the paddles stuck into the ground, we got beneath it and very soon fell fast asleep, and slept till 1 o'clock, when I was awoken by the sudden calm, for the storm had apparently only just then ceased.

The valley and river still retain their old character and dimensions till we come to the lowest of the lakes, called *Kawahwiga-kamac*, or Round Lake, which varies from one mile to half a mile in width, and is nearly five miles long. The name is by no means an appropriate one, as it is far from being round. The mean of some soundings I took was 28 feet, the greatest being 30 feet. On the sand banks which are at the head of the lake, were myriads of ducks, and large numbers of geese were swimming about in every direction, and a few great northern divers or loons. We camped at a place about two and a half miles down the river, called the Stony Barrier, the Cree of which is *Asinipichigakan*. For about 100 yards in length the river is full of large and small granite boulders, rendering it quite impassable for the smallest canoe when the water is low; at this time the water was just high enough to admit of us passing over it.

Two miles down the river from this spot a little stream brings in its gatherings from the prairies on the south, rejoicing in the name *Isquawistequannah Kaastaki*, which means, "where the heads of the women lie." A long time ago two women, one a Cree and the other a Chippeway, were killed by the Mandans on the banks of this stream; their bodies were left unburied, and their skulls are still lying there, from which circumstance the stream derives its name. This was all my informant at Fort Ellice knew of the story. The next creek, which is dignified with a name is the "Little cut-arm," or *Kiskipittonawe sepesis*, the origin of which I could not find out; it flows in from the north.

A few miles further down another creek, ten feet wide and very rapid, joins the Qu'Appelle on the other side; its name is *Pesquanamaawe sepesis*, which may be rendered into English, "the Scissor's Creek;" it is not a very literal translation, but is the best that can be given. The incident to which it owes its name exhibits a peculiar habit of the Indian, but is one that cannot be told. Near this spot there is an exposure of rock on the north slope of the valley, which on examination proved to be a shale similar to that on the Little Souris, but so decomposed that the amount or direction of its dip could not be ascertained. There are several extensive patches where the surface of the rock has been re-converted into soft mud, very much cracked, and on which no grass grows. On digging into it I found the mud to be three inches thick, then fragments very small and soft, and gradually increasing in size and hardness to a depth of about two feet, where the rock is perfectly hard, but very much shattered. About fifteen miles to the east of this the rock is again to be seen on the south slope of the valley, also much broken.

On the 26th vast clouds of grasshoppers, flying towards the east, passed high over our heads, without intermission, for nearly two hours. It was the last large flight I saw.

Big Cut-arm Creek, or *Kichekiskapettonano sepesis*, the last to be noted, joins the Qu'Appelle about 20 miles from its mouth, and is the largest of its affluents. It is 25 feet wide and three feet deep, where it issues from a wide ravine on the north side. The Qu'Appelle from thence to its mouth is from eight to twelve feet deep, and varies in width from 70 to 90 feet, and the rate of current is one mile and a half per hour.

There is much good land in the valley from the Fishing Lakes to the Assiniboine, but as it is flooded every spring it is questionable whether it will ever be of much importance. For ten miles up it there is an abundance of timber, consisting of aspens, balsam poplars, elm, black ash, oak, birch, and sugar maple. None, however, exceeding 1' 6" in diameter, and few so large. The underwood, which is very beautiful, is chiefly composed of dogwood, roses, cherries, and peminas, intertwined with convolvuli and vetches. In this wooded parts the birds are innumerable. Kingfishers, blue jays, and Canada jays, cat-birds, and American magpies, flitted from tree to tree uttering their discordant notes. Cherry-birds and pigeons were calmly and listlessly perched on the dense trees, having eaten plentifully of their favourite fruits, while the tyrant flycatcher, when alone or with some companions, chased and worried the crows, ravens, hawks, and eagles, who tried in vain to escape from them. The beautiful white-bellied swallow swiftly skimming the surface of the river helped in addition to enliven the valley. Ducks and geese crowded the river for several miles; there were enough of them, I should think, to supply all the markets in Canada. Minks were perpetually crossing and re-crossing the river in front of the canoe. I was told that deer are sometimes very



numerous in the valley, but I was only fortunate enough to see two jumping deer who were coming down to the river to drink, but the moment they got a glimpse of us away they bounded up the slope. The only other animal we saw was a little prairie wolf, Togany as he is called by the Indians, that was standing by the edge of the river, and who was so much astonished at our sudden appearance that he never thought of running away, but stood staring at us incapable of motion.

The wonderful uniformity of the valley, or that part of it which I have described, necessarily causes a great deal of repetition in the description of it; so similar is its character throughout that my two men, half-breeds, well accustomed to mark any peculiarities in the features of a country, said that though they might pass up and down it several times they thought they would often be at a loss to know in what part of it they were. The length of the valley from the second Fishing Lakes to its junction with the valley of the Assiniboine is 110 miles, while the river itself is about 270 miles long, which will give an idea of its extraordinary tortuous course. We arrived at its termination on the evening of July 27th, and having hauled up the canoe on the bank, walked across to Fort Ellice, distant about three miles, where I was kindly received by Mr. McKay.

Professor H. Y. Hind,  
&c. &c. &c.

Very truly yours,  
J. A. DICKINSON.

## CHAPTER V.

### FROM THE ELBOW OF THE SOUTH BRANCH OF THE SASKATCHEWAN TO THE NEPOWEWIN MISSION, ON THE MAIN SASKATCHEWAN.

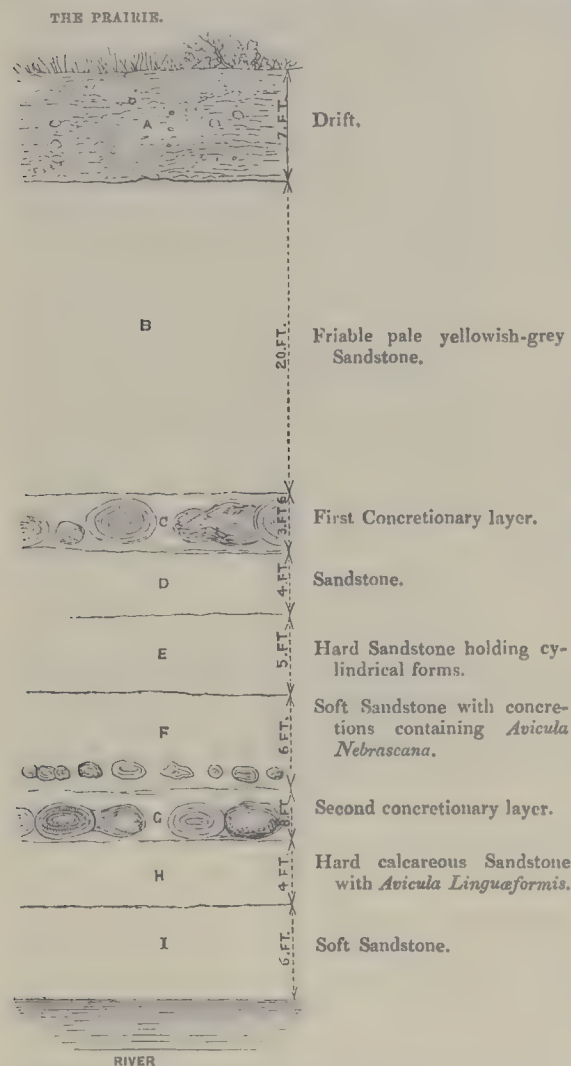
Rocks on the South Branch—Cretaceous—Altitude of exposure—Character of—Selenite—Fossils—Concretions—Mesaskatominia berry—Character of river—Drift—Rock exposures—Fibrous Lignite—Treeless Prairie—Cree Camp—Mud Flats—Rock exposure—Concretions—Treeless Banks and Prairie—Low country—Driftwood—Ripple marks—Dimensions of the South Branch—The Moose Woods—Water and Ice marks—Forest Timber—Character of River—Treeless Prairie—Boulders—Soundings—Buffalo—Dimensions of River—Absence of Animal Life—"The Woods"—Rate of Current—Boulders, Arrangement of—Artificial pavement—Tiers of Boulders—Temperature—Balsam Spruce—Former Aspen Forest—Good Country—Water-marks—Soundings—Absence of Animal Life—Stratified Mud—Fall of River—Character of River—Colour and Temperature of North and South Branch—The North Branch—Absence of Indians—Grizzly Bear—Current of North Branch—Coal Falls—Dimensions of North Branch—Boulders—Trees—The Grand Forks—The Main Saskatchewan—Fort à la Corne—Cubic Feet of Water in North and South Branch and Main Saskatchewan.

THE first rock exposure on the South Branch below the Qu'Appelle Valley is a cretaceous sandstone occupying the river bank, unconcealed by drift for some miles. The altitude of the highest part of the exposure is sixty feet above the level of the river. It is capped by about seven feet of drift, which reposes on twenty feet of soft and easily disintegrated sandstone of a pale yellowish-grey colour, containing a large number of small, bright, pale, yellow, spheroidal bodies, varying from one-tenth of an inch to one inch and a half in diameter, and composed of sand. Below this soft stratum there occurs a layer of sandstone about three feet six inches thick, which is broken into an irregular projecting outline by the protrusion of a series of immense concretions, of a flat spheroidal form, like that of a lemon slightly compressed at its longest diameter. The concretions vary from three feet to six feet in horizontal dimensions. They are very hard in the centre, and, show concentric rings for at least six inches from their outer casing, which is a shell of gypsum, often passing into selenite. Selenite is found in this and lower strata in veins and fragments. Some of the concretions thrust out their rounded forms from the face of the cliff, others have been broken off and show their internal structure. A gray sandstone with a slight tinge of green, soft and friable, then occurs for a space of four feet; it is succeeded by five feet of hard sandstone containing a vast number of obscure cylindrical forms, slightly conical, composed of sandstone and showing occasionally traces of organization. Below this stratum a layer of sandstone occurs, six feet thick, holding spheroidal forms, which vary in size from six inches to two feet in diameter; they are composed of yellow sand containing a hard central calcareous nucleus often six inches to one foot in diameter, and composed almost altogether of an aggregation of *Avicula Nebrascana*, (Evans and Shumard.) The stratum in which they are imbedded holds *Avicula Lingueformis*, (Evans and Shumard.)

A second layer of huge concretions then occurs, similar in external aspect to those already described. Below them there is a persistent layer of hard calcareous sandstone about four feet thick, containing *Avicula Lingueformis*, (E. and S.)

The lowest stratum exposed is a soft sandstone about six feet above the river, and passing beneath its level. This rock is worn into caves by the action of water. The part of the formation exposed is nearly horizontal, with a slight north-westerly dip. For several miles this rock continues to form the river bank. The concretionary masses are persistent, bold, and prominent; and about three miles in a north-westerly direction from the point where they were first observed, those of the lower stratum are nearly on the same level as the water, thus showing a north-westerly dip of about three feet in the mile.

The banks of the river slope gently from the prairie on the south-west side to an altitude of about 250 feet; they then become abrupt. On the north-west side the sandstone cliff, varying from 30 to



SECTION ON THE SOUTH BRANCH OF THE SASKATCHEWAN, SHOWING CONCRETIONARY LAYERS HOLDING *Avicula Nebrascana* AND *Avicula Linguaeformis*.

geological depression, which may have been the seat of a large lake during earlier periods.

Some exposures of sandstone appear on the river at intervals lower down, and the drift above them is well stratified with layers of boulders of the same character as the sandstone below, and so regularly placed as to lead, when viewed from a small distance, to the belief that they are part of rock in position. Thirty miles from the Qu'Appelle the rock appears on the south-west side, and consists of a white sandstone, with impressions of fragments of leaves, and some brown fibrous lignite.

A treeless prairie with a few sand dunes forms the country on either side for a distance of 42 miles, which comprised the extent of our voyage during the day. As evening began to close upon us we come to a camp of Crees just after they had crossed the river. They numbered 19 tents, and in order to avoid them we drifted several miles further down, and built our fire close to the river at the mouth of a small gully leading from the prairie, 200 feet above us. Mud flats and sandbars continue as before, but the river is not more than a third of a mile broad.

A narrative of a canoe voyage down a river flowing through a prairie country must necessarily involve numerous descriptive repetitions, which will appear perhaps less tedious and more readable in the form in which they were registered at the time in my note book, than if I were to attempt a connected narrative. I shall therefore strictly follow the daily record of what we observed, at the risk of its being nothing more than a dry enumeration of not very interesting facts.

August 1st.—Found a fine exposure of rock on the river bank where we camped last night. There is a change in the aspect of some of the strata. They occur massive, in rusty red and greenish-gray sandstone layers, with the concretionary bands as before described. A belt of sandstone twelve feet from the river level is capped by brown and red argillaceous layers forty feet thick in the aggregate. Drift sand, ten feet thick, to the prairie level succeeds. The upper portion of the drift is hard and reddish coloured; as it approaches the clays below it partake of an argillaceous character. The upper stratum of the sandstone weathers reddish brown, with bands of deep red and purple. Below this a greenish-gray stratum occurs, enveloping more concretions of a reddish-brown colour. The concretions are hard and argillaceous. The greenish-gray matrix is soft when weathered, otherwise hard, and may be split without difficulty into thin layers. The concretions occur in the sandstone in forms easily detached, and often contain abundance of *Avicula Linguaeformis*. If the clays above the sandstone are rock in position, the exposure has an altitude of about 60 feet. Fragments of fibrous

60 feet in altitude, rises abruptly from the river, then follows a hilly slope to the prairie level. Trees, consisting chiefly of aspen and the Mesaskatomina (la Poire), are found in patches on both sides. The river continues about half a mile broad, with numerous sand-bars and low alluvial islands. The drift above the sandstone is gravelly, and many small sand dunes occur on the hill bank sloping to the prairie, and have progressed beyond the prairie to a considerable distance. A treeless prairie, boundless and green, except where the patches of drifting sand occur, is visible on either hand from the top of the bank; below the river glides with a strong current, two and two and a half miles an hour, filling the broad trench or valley it has eroded. The Mesaskatomina berry (*Amelanchier Canadensis*) la Poire, is very abundant; shrubs or trees 18 to 20 feet high, loaded with this fruit perfectly ripe and of excellent flavour, are numerous in every grove; the berries are of the size of large black currants, very juicy and sweet. This shrub is the La Poire of the Red River voyageurs.

During the morning of this day (31st July) three Crees from a camp on the east bank came to the river, they shouted to us, asking us to land, an invitation we declined. About 12 miles below the Qu'Appelle the river becomes narrower, being not more than a quarter of a mile broad, but full of mud flats and shoals. The banks are more sloping, and frequently broken into two plateaux, the upper one being the prairie. The lower plateau is dotted with small groves, the intervals consisting of pretty grassy areas, smooth as a lawn.

About 15 miles from the Qu'Appelle valley the drift is occasionally exposed in cliffs, which disclose its structure 20 to 30 feet above the river. It consists of coarse sand stratified in curves, and often containing beds of gravel; it is also frequently capped by the same material with small boulders. The dip of the rocks to the north-west, and the aspect of the drift appear to indicate a



lignite, dark brown and sometimes approaching to black in colour, occur in the sandstone. The attitude of the rocks is nearly horizontal. The greenish-gray sandstone is identical with the rocks seen on the south bend of the Qu'Appelle above Sand Hill Lake; the red layers are similar lithologically to those observed at the height of land in the same valley, holding the same species of shells. Sometime layers of gray sandstone occur which are easily split; they contain the impressions and remains of plants. The position of these rocks is about fifty miles from the Qu'Appelle Valley.

The river banks and the whole country is now much lower. This subsidence began about four miles from our camp south of us. The banks at our camp are not more than one hundred feet in altitude, and are getting lower as we proceed north. They are treeless areas, and so is the prairie on either side, with few detached exceptions. The river is about half a mile broad, with a current in the lead fully two miles and a half an hour. Large drifted trees are sometimes seen on the beach, and one pine was noticed this morning. They have probably travelled from the flanks of the Rocky Mountains.

About twelve miles from our camp, or 60 miles from the Elbow, forests of aspen begin to show themselves on the banks, after passing through a low country, which is an expansion of the river valley. Ripple marks are numerous on the fresh mud, the furrows lying parallel to the course of the stream. They are quite recent, and similar to those observed on Red River in the spring. The ash-leaved maple begins to show itself, but the aspen is the prevailing tree. The woods are not continuous, and the prairie on either side of the river remains bare; it is fast regaining its former altitude. Sand hills are visible in the distance from the top of the bank. La Poire is very abundant and fine flavoured. The exposed cliffs consist of reddish loam, and the rock is no longer seen below them. At a point fifty-three miles from the Elbow we made a careful section of the river, and found its breadth to be nearly one-third of a mile (28 chains); its greatest depth was ten feet on the east side, but on the west side there is another channel with nine feet of water.

As we approached the Moose Woods we passed for several hours between a series of low alluvial islands from ten to twelve feet above the water. They sustain some fine elm, balsam poplar, ash, ash-leaved maple, and a vast profusion of La Poire. The river valley is bounded by low hills leading to the prairie plateau four to eight miles back. The country here furnishes an excellent district for the establishment of a settlement. The spot where we are camped for the night is an extensive, open, undulating meadow, with long rich grass, and on the low elevations rose bushes in bloom grow in the greatest profusion. It is only ten feet from the water, yet it does not appear to be flooded in the spring; water-marks and ice-marks are nowhere seen above four feet from the present level of the broad river.

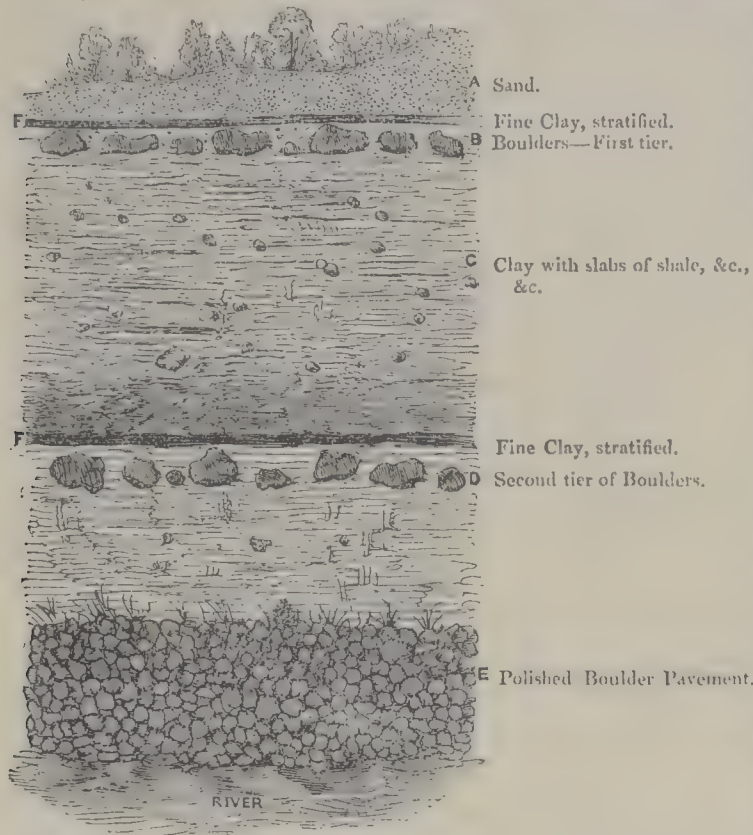
August 2nd.—The region called the Moose Woods, which we entered last evening, is a dilatation of the Saskatchewan, flowing through an extensive alluvial flat six miles in breadth, and cut into numerous islands by the changing course of the stream. This flat is bounded by sand-hills, some of which are nothing more than shifting dunes. The woods are in patches, and in the low land consist of balsam poplar, white wood, and aspen. Small aspen clumps cover the hills, but no living timber of importance has been seen as yet, although many fine dead trunks are visible, probably destroyed by fire. The river continues to flow through a broad alluvial flat for about twenty-five miles. Its water is very turbid, like that of the Mississippi, holding much solid matter in mechanical suspension.

Beyond the Moose Woods the banks close upon the river, and have an altitude not exceeding sixty feet. The breadth of the stream contracts to 250 yards, with a current fully three miles an hour. On the east bank the prairie is occasionally wooded with clumps of aspen, on the west side it is treeless, and shows many sand hills. During the afternoon we landed frequently to survey the surrounding country. Nothing but a treeless, slightly undulating prairie was visible; many large fragments of limestone not much water-worn lie on the hill-banks of the river, which is about 100 feet in altitude. The river continues very swift, and maintains a breadth of 250 yards. Frequent soundings during the day showed a depth of ten to twelve feet. A little timber displays itself occasionally on the east bank below the level of the prairie. The dead bodies of buffalo are seen floating down the stream, or lodged on sand-bars in shallow water. The banks expose occasionally yellow drift clay with numerous boulders; the soil of the prairie appears to improve as we progress northwards, and the grass is no longer stunted and withered. Little rapids occur at the bends of the river, but there is always deep water on the other side. A heavy thunderstorm compelled us to camp two hours before sunset.

August 3rd.—The river is not more than 200 yards broad, but deep and swift; the volume of water it carries here, about eighty miles from the Grand Forks, is much less than at the Elbow, where it is half a mile broad. No doubt evaporation during its course through arid plains is competent to occasion a large diminution. Recent water-marks show a rise of five and eight feet, but near the top of the lowest bank stranded timber occurs twenty-five feet above the present level of the river. On both sides a treeless prairie is alone visible. There is a remarkable absence of animal life; no deer or bear have been seen; tracks of buffalo are everywhere, but they have already passed to the east. The nights are cold, but fine, dew very abundant. The prairie level is not more than eighty feet above the river.

At 8 a.m. we arrived at a part of the river where it showed an increase in breadth, it is now about a quarter of a mile broad, still flowing through a treeless plain, in which only one low hill is visible. This character continues for many miles, the hill banks then begin to increase in altitude, and are about 100 feet high, but the river flows through a dreary treeless plain for 30 miles from our camp, after which "The Woods," as they are termed, begin; they consist of a few clumps of aspen on the

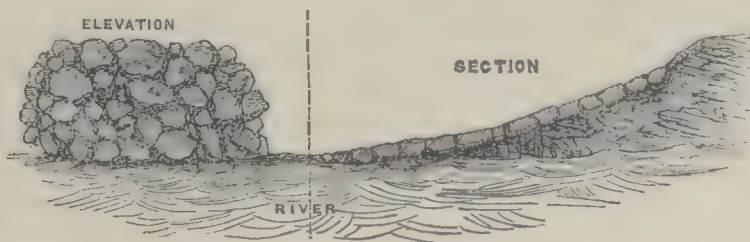
hill flanks of the deep valley of the river. The face of the country is changing fast, it is becoming more undulating, and patches of aspen woods appear on the prairie; here and there,



HORIZONTAL LAYERS OF BOULDERS IN DRIFT ON THE SOUTH BRANCH, WITH POLISHED BOULDER PAVEMENT AT THE EDGE OF THE RIVER.

In many places close to the water's edge, and rising from it in a slope for a space of 25 to 30 feet, the fallen boulders are packed like stones in an artificial pavement, and often ground down to a uniform level by the action of ice, exhibiting ice grooves and scratches in the direction of the current. This pavement is shown for many miles in aggregate length at the bends of the river. Sometimes it resembles fine mosaic work, at other times it is rugged, where granite boulders have long resisted the wear of the ice and protected those of softer materials lying less exposed.

Two tiers of boulders, separated by an interval of twenty feet, are often seen in the clay cliffs. When first noticed, they were about fifteen feet above the stream; as we descend the stream, they rise above its level, preserving evidently a nearly horizontal position. The lower tier contains very large fragments of water-worn limestone, granite, and gneissoid boulders, above them is a hard sand containing pebbles; this is superimposed by an extremely fine stratified clay, breaking up into excessively thin layers, which envelop detached particles of sand, small pebbles, and aggregations of particles of sand. Above the fine stratified clay, yellow clay and unstratified sand occur. The fine clay must have been deposited in very quiet water. The polished pavement at the foot of the cliff was observed this afternoon inclined at a high angle, so much so that it was difficult to walk upon it.



POLISHED AND GROOVED PAVEMENT OF BOULDERS ON THE SOUTH BRANCH.

Towards evening the country began to improve, and the timber to include a few elm and birch. In the prairie are clumps of aspen. On the flats, which occur regularly on the inside of each bend of the river, with steep clay cliffs on the outside of the curve, fine aspens are common, and the herbage is very luxuriant.

August 4th.—Temperature of air at 8 A.M. 61°, of the South Branch, 67°. The balsam-spruce begins to appear in groves. The river winds between high wooded banks, with low points and wooded bottoms on one side; high cliffs also wooded with aspen and spruce groves on the opposite bank. The flats are covered with a rich profusion of vetches, grasses, and rose bushes. There are traces everywhere of a former fine aspen forest, with clumps of elm and ash; the dead trunks of these trees, 18 inches in diameter, being frequently concealed by the undergrowth, offer a rude and stubborn obstacle to progress on foot through the tangled mass of vegetation which covers the rich flats. A view obtained from a low hill coming down to the banks of the river, continues to show a deep valley

however, the remains of a heavier growth are visible in clusters of blackened trunks ten to fourteen inches in diameter. During the afternoon we anchored to measure the rate of the current. The river is 200 yards broad, and it flows three miles and a half an hour. Its average depth is seven and a half feet.

Some remarkable exposures of drift, consisting of clay with long lines of boulders, occur frequently after entering the wooded parts of the South Branch of the Saskatchewan. The drift is exposed in cliffs 50 to 80 feet in altitude at the bends of the river. The fragments of shale, slabs of limestone, and small boulders imbedded in the clay are not arranged according to the position they would take if dropped by floating ice; some of them stand in the drift with their longest axis vertical, others slanting, and some are placed as it were upon their edges. They have the same forced arrangement and position as the shale, &c., in the blue clay at Toronto. (See Chap. XI.) Here also are long lines of boulders from ten to twenty feet below the surface, or top of the cliff; they lie horizontally as shown in the woodcut.



about three-quarters of a mile broad, through which the river winds from side to side in magnificent curves. The polished pavement on the banks was frequently seen during the day, with ice furrows and scratches. During the whole afternoon we passed swiftly through a good country, well fitted, as far as we could judge from soil and vegetation, for settlement. Islands are numerous in the river, and extensive alluvial flats occur in an expansion of the valley. The water-marks are seen seven and nine feet above the present level. The banks of loose clay, when not protected by the pavement before described, are being undermined, and fall bit by bit into the river. A violent thunderstorm at 5 P.M. compelled us to camp.

August 5th.—The early part of the morning was employed in examining the surrounding country, which gave evidence of an excellent soil, and timber sufficient for the first purposes of settlers. Much of the timber, however, has been burnt, and the country is fast becoming open prairie land. Soundings yesterday showed 10 to 14 feet water in the channel; the current maintains its speed of three to three miles and a half an hour. Throughout the entire length of our voyage we have been surprised at the extraordinary absence of animal life. Of quadrupeds, we have seen half a dozen wolves, two or three badgers, several beaver, skunks, minks, foxes, and a number of dead buffalo; of birds, eagles, geese, a few ducks, kingfishers, cliff martins, pigeons, crows, cranes, plover, hawks, and a few of the smaller birds; but no deer or bear, or live buffalo; and if we had been compelled to depend altogether upon our guns for a supply of provisions, it is probable that our voyage of 250 miles down the South Branch would have been attended with some inconvenience and delay. Early in spring and late in the autumn game is more abundant, but during the summer season the smaller rivers in the prairies, the ponds and lakes which abound throughout the country north of the Touchwood Hills, to be afterwards described, are the haunts of vast numbers of aquatic birds and of the larger four-footed animals which now form the small remnant of the earlier representatives of animal life in these wilds, before the fur trade led to their destruction, either for the sake of their flesh or skins.

The stratified layers of fine mud before described were found again this morning 40 feet from the water's edge, above the horizontal layer of boulders which has again made its appearance. The small aggregations of sand are still distributed between the thin layers of fine clay. A great change is coming over the character of the stream; its fall, as ascertained by levelling, is two feet three inches in the mile, with a very rapid current, sometimes six miles an hour. Large boulders are numerous in the bed of the river, but there is always a passage from 50 to 60 yards broad, often, however, very tumultuous, and for a small heavily laden canoe, rough, and at times hazardous. The hill banks are getting higher as we approach the North Branch. Balsam spruce appears in patches and stripes. The river sweeps in grand curves at the foot of high bluffs, in which fine exposures of the drift may be seen; on the opposite side are low alluvial points covered with aspens, thick and impenetrable. Yellow clay cliffs, 120 feet high, appear at the outside curve of the bends, and where the adjoining flats begin, balsam spruce, two feet in diameter, is not uncommon.

At half-past two p.m. we arrived at the North Branch, coming upon it suddenly and finding ourselves in its waters almost before we were aware of its proximity. The temperature of the South Branch was 67°, of the North Branch 62° an important difference at this season of the year. It is, perhaps, a fair standard by which to estimate the climatic character of the regions of country through which these rivers flow, in relation to agriculture. The difference in the time of the ripening of fruits on the two Branches has already been noticed. (See page 34, par. 20.) The water of the South Branch is yellowish-brown in colour, and turbid; of the North Branch, a shade lighter, and clearer. The one more resembled the waters of the Mississippi, the other those of the St. Lawrence. The South Branch is the larger river of the two at the Grand Forks. After resting for some time at the junction of these mighty rivers, the South Branch being about 180 yards, the North Branch 140 yards broad, their currents meeting one another at the rate of three-and-a-half miles an hour, we turned our canoe up stream and attempted to stem the tide of the North Branch of the Saskatchewan in search of the Coal Falls.

With the exception of the Cree encampment passed during the first and second days of our voyage, we did not meet with a single Indian or half-breed. Once or twice, smokes, which from their being soon answered in another quarter, we presumed to be signals, and might be raised by Blackfeet in the distant prairies, appeared on the west side of the river. The plan we adopted one night when danger was apprehended, was to cook our supper early in the evening and then drift down the river at sunset for a few miles.

Once only were we disturbed in camp, and this may or may not have been a false alarm. Both of our half-breeds came into the tent some time after we had retired to rest, and in a low tone whispered 'a grizzly bear,' at the same time seizing a rifle and a double-barrelled gun which were purposely placed at the foot of the tent ready for any unwelcome intruder upon our repose. The night was dark and the fire nearly out. Our men declared they had seen a large animal within 10 yards of us, and pronounced it to be a grizzly bear; the alarm they testified was the only proof of the presence of that terrible animal, for the patient watching of the whole party during the greater part of the night, and a careful search for tracks next morning failed to satisfy me that we had been disturbed by this deservedly dreaded monster of the Western Plains.

That the grizzly bear is sometimes found far down the South Branch is a well known fact, and he is such a daring and formidable antagonist that proper precautions are always advisable. A large camp fire often fails to deter this animal from making an attack, and when a large fire might attract the attention of wandering parties of Blackfeet which were known to be following the Crees, who had crossed the river some distance above us, it would not have been wise to have availed ourselves of this doubtful security. Our camp was at the edge of a cliff; we therefore were sure of not being attacked in our rear, and the greater part of the night was passed in quietly watching the open space

in front of us. It was the steady determination of the half-breeds to watch, after a fatiguing day, that led me to suppose they had really seen a grizzly bear, for under ordinary circumstances no people are so unwilling to watch during the night in the prairie as those who have lived the greater part of their lives in them, without they have the best reasons for keeping themselves awake.

During the afternoon of the 5th and morning of the 6th of August we occupied ourselves in dragging the canoe up the North Branch. Paddling was quite out of the question, the current being from six to seven miles an hour a few hundred yards above the Forks, and continuing rapid for a distance of seven miles, that being the furthest limit of our exploration up the North Branch. This rapid current is maintained for eighteen miles above the Grand Forks; the valley of the river, as far as we saw it, resembles in almost all particulars the last ten miles of the South Branch; the river channel is much more obstructed by boulders, and the depth and volume of water considerably less. It is doubtful whether in its present condition a steamer drawing more than two feet of water could ascend it, and in dry seasons the boulders and rapids would probably present an insuperable obstacle. The river was high at the time of our visit, and about 180 yards broad; nevertheless in descending we had a few narrow escapes from striking against huge boulders just concealed by the water. If some of these were removed, the chief difficulties during low summer levels to steamers of shallow draft and great power would vanish.

The character of the Coal Falls, above the point we reached, is described by the people at Fort à la Corne to be similar to the part we saw. The hill banks expose drift in which large masses of cretaceous rock are imbedded containing fish scales. Fragments of lignite are numerous, but no rock was seen in position. The breadth of the valley is about half a mile and 150 feet deep; the river winds from side to side like the South Branch. The low points are covered with aspen; the hill banks with white spruce, aspen, banksian, pine, and poplar. Just below the junction of the two branches, after they unite to form the main Saskatchewan at the Grand Forks, there is an extensive flat, on which the remains of an old post of the Company is situated.

The main Saskatchewan is a noble river, sweeping in magnificent curves through a valley about one mile broad, and from 150 to 200 feet deep. We paddled rapidly round eight points, making a distance of sixteen miles in three hours, and towards evening sighted Fort à la Corne, with the Nepowewin Mission on the opposite or north side of the river. As the description of the Saskatchewan and the valley in which it flows at Fort à la Corne applies equally to the river between it and the Grand Forks, it is unnecessary to incur the risk of needless repetition by enumerating the features of each of the eight points or bends we passed, and the character of the valley through which the river flows. At Fort à la Corne we made measurements of its leading dimensions, a section of the bed of the river (see sheet of sections,) ascertained its rate of current, examined the cliffs, points, and flats, which are so curiously reproduced at every bend both above and below for many miles, and which will be amply sufficient to illustrate the most interesting and important features of this noble stream between the Grand Forks and a short distance below Fort à la Corne, after which the country begins to assume a different aspect, and will require an independent notice.

An approximate estimate of the number of cubic feet of water passing down the South Branch, North Branch, and Main Saskatchewan, gives the following numbers:—

	Cubic feet per hour.
South Branch - - - - -	123,425,616
North Branch - - - - -	91,011,360
Main Saskatchewan, at Fort à la Corne - - -	214,441,290
Main Saskatchewan near Tearing River - - -	206,975,000

CHAPTER VI.

FROM FORT A LA CORNE TO FORT ELLICE, AND FORT ELLICE TO THE RED RIVER SETTLEMENTS.

Sandy Strips on the Saskatchewan—Banksian Pine—Fine Country—Long Creek—Old Forest—Fires, extent of—Extension of the Priaries—Former Extent of Wooded Country—Effect of Fires—Long Creek—Hay Ground—Moles—Humidity of Climate—Source of Long Creek—The Birch Hills—Flowers—Aspect of Country—Carrot River—The Lumpy Hill of the Woods—Lakes—The Wooded Country—Former extent of—Limits of good Land—Raspberries—Mosquitoes—The Height of Land—Continuation of the Eyebrow Hill range—Valley inoculating with South and North Branch of the Saskatchewan—Grasshoppers—Character of the Country—Birds—Destruction of Forests—The Big Hill—Boulders—Limit of Wooded Country—Belts of Wood—Great Prairie—Character of the Country—Salt Lakes—The Touchwood Hills—Beautiful Country—Excellent Soil—The Quill Lakes—Flowers—White Cranes—The Heart Hill—The Last Mountain—The Little Touchwood Hills—Lakes numerous—Touchwood Hill Fort—Ka-ou-ta-at-tin-ak—Touchwood Hill Range—Long Lake—Devil's Lake—Garden at the Fort—White Fish in Long Lake—Burnt Forest—Grasshoppers—Winter Forage for Horses—White Fish—Buffalo—Medicine Man—Climate of Touchwood Hills—Humidity of—Trail to Fort Ellice—Marshes—Little Touchwood Hills—Character of Country changes—Depressions—Pheasant Mountain—Character of the Country—Heavy Dews—Hoar Frost—Cut-arm Creek Willow Prairie—Little Cut-arm Creek—Rolling Prairie—Attractive Country—Spy Hill—Boulders—Aspen Groves increasing—Sand Hills—The Assiniboine—Dimensions of Valley near Fort Ellice—The Riding Mountain—Rapid River—Character of the Country—Well adapted for Settlement—Timber of the Riding Mountain—Birds—Cretaceous Shales—Pembina Mountain—White Mud River—Character of the Country—Forest Timber—Fish—Luxuriant Vegetation—Lake Manitobah—Fishing Station—Red River—Assiniboine Prairies—Arrive at the Settlements.

The trail from Fort à la Corne to the old track leading from Fort Ellice to Carlton House ascends the hills forming the banks of the deep eroded valley of the Saskatchewan in the rear of the Fort. It



passes through a thick forest of small aspens until near the summit, when a sandy soil begins, covered with Banksian pine and a few small oak. This sandy area occupies a narrow strip on the banks of the river, varying from half a mile to four miles broad. South of the sandy strip the soil changes to a rich black mould distributed over a gently undulating country; the pine gives place to aspen and willows in groves, the aspens occupying the crest of the undulations, the willows the lowest portion of the intervening valleys. On the slopes the grass is long and luxuriant, affording fine pasturage. The general aspect of the country is highly favourable for agriculture, the soil deep and uniformly rich, rivalling the low prairies of Red River and the Assiniboine. Our course lay along the banks of Long Creek, which flows in a small depression parallel to the South Branch of the Saskatchewan, and enters the main river near Fort à la Corne.

August 10th.—During the whole of yesterday afternoon we passed through a good farming country. The remains of aspen forests, in which trees of large growth are numerous, are still to be seen in solitary clumps, or with blackened trunks lie hidden in the long luxuriant herbage until rudely encountered by the carts and horses as we push our way through the rank tangled grass. Raspberries were abundant in patches but not yet ripe; they were fully ripe a fortnight since on the Qu'Appelle, 200 miles south.

Some of the small aspens near our camp on the 9th have been nipped at the extremities of the branches by frost when in full leaf. The tops of many are black and drooping.

About four miles from Long Creek, and perhaps ten from the South Branch, a low range of hills running north-east and south west, are still covered with an aspen forest of the same age as the blackened poles which stand in clumps on all sides. These poles are from nine to twelve inches thick; the young aspens are from four to six inches in diameter. The fire was here last year. We have now traced the extent of that vast conflagration from Red River to the South Branch, and over four degrees of latitude at least; but the Rev. Henry Budd states, that in the autumn, north, south, east, and west of the Mission the country appeared to be in a blaze. The immediate banks of Long Creek, with the exception of a narrow strip in the prairie south of the Qu'Appelle, is the only part of the country in which we have not recognized traces of last year's fire. The annual extension of the prairie from this cause is very remarkable. The limits of the wooded country is becoming year by year less, and it appears from the almost universal prevalence of small aspen woods that in former times the wooded country extended beyond the Qu'Appelle, or five or six degrees of latitude south of its present limit. It being always borne in mind that the term wooded country is applied to a region in which prairie or grassy areas predominate over the parts occupied by young aspen woods. The south limit of the wooded country is some distance north of the Touchwood Hill range, but there are areas north and south of the Qu'Appelle where the remains of aspen forests of large dimensions exist, and young forests are in rapid process of formation, perhaps, however, soon to be destroyed by fire.

This lamentable destruction of the forest is a great drawback to the country, and a serious obstacle to its future progress. It appears to be beyond human power to arrest the annual conflagrations as long as the Indians hold so vast a prairie region as their hunting grounds. Their pretexts for "putting out fire" are so numerous, and their characteristic indifference to the results which may follow a conflagration in driving away or destroying the wild animals so thoroughly a part of their nature, that the annual burning of the prairie may be looked for as a matter of course as long as wild Indians live in the country. A fire lit on the South Branch of the Saskatchewan may extend in a few weeks, or even days, to Red River, according to the season and the direction and force of the wind.

Long Creek maintains a breadth of six feet, flows clear and sluggishly through a broad shallow depression, where wild hay is as abundant as if the whole valley were one continuous beaver meadow. The burrows of moles are very numerous; wherever the soil is very rich these little animals are to be found in large numbers; they form excellent indicators of the fertility of a soil; they are never seen where the soil is poor and sterile. Ponds and lakes are very numerous; this extensive distribution of water points to a much more humid climate than is in the country south of the Qu'Appelle.

August 11th.—Still the same excellent soil. The burrows of foxes and badgers have twice shown a light gravelly substratum on low ridges, otherwise the black mould is everywhere distributed. A chain of lakes, lying westerly from our course, give rise to Long Creek. The Lakes are from 200 yards to a third of a mile broad, and form a continuous series connected by a small rivulet for a distance of ten miles. A hill range, called the Birch Hills, whose western flanks we have turned, is said by Indians to extend to the rear of Fort Pelly. A vast profusion of flowers gives remarkable beauty to the large open areas. They generally occur in parterres of several acres in extent occupied by one species, here the yarrow, there the fire weed, then a field of a species of helianthus, followed by *Liatris scariosa*. When viewed from an eminence, the country appeared to be clothed with pink, white, yellow, and blue, in singular contrast to the uniform tint which prevails on the great prairies of the Little Souris.

Our course yesterday continued up the valley of Long Creek, which taken as a whole, offers by far the most attractive features for settlement of any part of the country through which we have passed since leaving Prairie Portage. To-day we follow the windings of a shallow brook which runs into the South Branch. It meanders through a fine broad rich valley, with hills on its south-eastern side gently sloping towards it, and covered with the dead standing trunks of burnt aspen. The soil of this valley is good, differing in no respect from that of Long Creek. The flowers are equally numerous and showy, consisting of the same varieties, and distributed in large patches occupied by a single species.

We passed to-day near the source of a river which flows into the main Saskatchewan at the Pas, about 140 miles distant from us. It is called Carrot River or Root River, and, rising within twelve miles of the South Branch, it drains an extensive area of wooded country, passing also in its course through numerous lakes. The rise of Root River within ten or twelve miles of the South Branch shows that the height of land between the two water-sheds maintains the same distance as on the Qu'Appelle, and at the North Fork of that valley near the Moose Woods. Before us, about four miles distant, is



the Lumpy Hill of the Woods, and the range of hills on the north side of which Root River flows becomes better developed. The Birch Hills form the dividing ridge between the water which flows into the Main Saskatchewan and the Assiniboine, or Red Deer and Swan River.

The valley leading to the Lumpy Hill of the Woods is rich in alluvial meadows, ponds, and lakes. A view from the Lumpy Hill, which I ascended this evening, is very extensive. The altitude of this eminence is about 400 feet above the general level of the country. From its summit an undulating open country, dotted with lakes and flanked by the Birch Hills, is visible towards the east. South and south-west is a lake region, also north and north-east. These lakes are numerous and large, often three miles long and two broad. Seventeen large lakes can be counted from the Lumpy Hill; hill ranges in several directions can also be discerned. The most important of these are the Bloody Hills, the Woody Hills, far in the prairie west of the South Branch, and the chain of Birch Hills running from the Lumpy Hill easterly. The view extends to the borders of the wooded land; beyond is a treeless prairie. The so called wooded land now consists of widely separated groves of small aspens, with willows in the low places. Formerly, the Cree Indian guide we took from the Lake of the Sand Hills states the woods extended in one unbroken range to the borders of the prairie, which may be 25 miles south-east of the Lumpy Hill, the Moose Woods coming between the prairie and the South Branch to the west.

Much of the soil on the south and east of the Lumpy Hill is sandy and poor; in fact we have reached the limit of the good land, and are about to enter a comparatively sterile country. Low hills and long ridges running north-east by east, and south-west by south, diversify the general level character of the plains, as seen from the Lumpy Hill. This eminence consists of drift sand and clay, with boulders on its summit; the western side is very steep, and partially covered with a burnt forest of birch. Raspberries of very large size abound on the west side, but the mosquitoes start from the bushes in such countless myriads, that it is next to impossible to linger five minutes to pick the delicious fruit. I offered the Cree guide a piece of tobacco for a tin cup full of raspberries; he tried to win it, but after a short struggle with these terrible insects, he rushed from the hill side and buried his face in the smoke of the fire we had lit to expel the tormentors from the neighbourhood of our camp; the horses became quite frantic under the attacks of their tormentors, holding their heads over the smoke, and crowding together in a vain endeavour to avoid the clouds of insatiable insects which surrounded us. Both man and beast passed a miserable, restless, and sleepless night.

August 12th.—The early part of this morning was spent on the summit of the Lumpy Hill. A strong breeze drove the mosquitoes away, and permitted me to enjoy a quiet view of the country, which lay mapped about 400 feet below. After breakfast, the trail passed nearly due east, over a series of hills and through intervening valleys, constituting a height of land. This range may be from thirteen to fifteen miles from the South Branch. It is a continuation of the Eyebrow Hill range on the Qu'Appelle, before described, and it continues on under the name of the Birch Hill, limiting the valley of the North Saskatchewan, as far as the rear of Fort Pelly. As soon as we passed the crest of this range, and entered the small aspen prairie east of the hills, a valley through the range became apparent to our right. From lakes in this shallow depression water passes to the South Branch and to the North Branch, by a tributary of Carrot River, during spring freshets.

Grasshoppers were seen to-day, flying to the north-east. These are the first that have been noticed since leaving the Mission on the Qu'Appelle. The vegetation still continues luxuriant; lakes are numerous, and flowers abundant. Aspens cluster here and there, and the country presents many attractive features. Wild-fowl are found on all the lakes: cranes, both the brown and white; waders of many species, and a few prairie hens. As we approach the great prairie, the country becomes more undulating, and the soil light-coloured and poor. The aspens, which cap some of the hills, are still large, although many are nothing more than dead trunks. The wooded country through which we are passing is only so called in remembrance of former forest growth. If the devastating fires continue for a few more years, it will become a treeless prairie to the Lumpy Hill; and the aspen and birch woods will then be limited to the country between that eminence and the North and South Branch of the Saskatchewan. A young brood of grasshoppers have been seen to-day, showing that these destroyers reached this part of the country last autumn.

At noon on the 13th, we arrived at the Big Hill, a point of some interest, for south and south-east of it, a boundless, undulating prairie lies before us; the summit of the Big Hill is covered with huge granite or gneissoid and limestone boulders, indeed on all the hills which surround the Big Hill boulders are very numerous. The limit of the so-called "Wooded Country" is about seventy miles from the North Branch in an air line, and thirty miles from the South Branch.

August 15th.—In journeying from the Lumpy Hill we crossed three belts of woods before arriving at the great prairie west of the Touchwood Hills. These belts, which consist of groves of small aspen, following a low gravelly ridge about a mile broad, and having a north-east and south-west direction, are separated by prairie valleys, which sustain in their lowest parts a good soil and fine pasturage. Each belt diminished to a point some ten or fifteen miles south-west of our track. We can see the points of these belts from the summit of mounds not more than fifty feet high; beyond them is a treeless prairie, stretching away to the South Branch north-eastward. The belts of woods become broader in a north-easterly direction until they merge into the wooded country between the Birch Hills and the Saskatchewan. There are many delightful spots in the belts; the herbage is clean as a well shaven lawn, the clumps of aspen are neatly rounded as if by art, and where little lakes alive with waterfowl abound, the scenery is very charming, and appears to be artificial, the result of taste and skill, rather than the natural features of a wild, almost uninhabited country.

In the prairie valleys the ponds are fringed with boulders, and water-marks show that during the spring a large area is flooded. The great extent of pond and marsh affords food and shelter to vast numbers of aquatic birds. Grey geese were seen here for the first time; the Canada goose is very



abundant; and duck, teal, cranes, and bittern, are numerous. The lakes and marshes all contain salt or brackish water, which we found to our discomfort was not suitable for culinary purposes, or for slaking thirst. Tea made from it had a nauseous taste, and possessed the medicinal effect which might be supposed to result from preparing that beverage with a weak solution of Epsom salts. The Touchwood Hills seen from the treeless prairie present a bold outline gently rising from the flat country, and maintaining a course nearly due east and west for ten or twelve miles, they then assume a more easterly direction; westward they are seen to die away in the prairie.

In the afternoon we began the ascent of a gently rolling slope at the foot of the Touchwood Hills; patches of willow appear here fringing small areas of good pasturage. At 6 p. m. we reached the summit plateau, and then passed through a very beautiful undulating country diversified with many picturesque lakes and aspen groves, possessing land of the best quality, and covered with the most luxuriant herbage. From the west side of the summit plateau the Quill Lakes are seen to the north-west; these bodies of water have long been celebrated for the large numbers of goose quills which were occasionally collected there by Indians, and brought to the fort for exportation. There is no timber visible on the west side of the range with the exception of small aspen and burnt willow bushes. All the wild flowers so numerous and beautiful in the valley of Long Creek are met with on the summit plateau of the Touchwood Hills, of even larger growth and in greater profusion. Little prairie openings fringed with aspen occur here and there, through which the trail passes; we then come suddenly on to the banks of a romantic lakelet, in which ducks with their young broods are swimming, and flocks of white cranes start from their secluded haunts at so unexpected an intrusion. The breadth of this beautiful plateau is about four miles, its level above the Salt Prairie to the west may be about five hundred feet. Our course lay diagonally across it, so that we had to pass through seven miles of this delightful country. The Heart Hill, with others not seen before, come into view as we approach the eastern limit and begin a descent to Touchwood Hill Fort. The Last Mountain is visible in the west, but blue in the distance; the little Touchwood Hills lie before us, the trail to Fort Ellice stretching towards their eastern flank. The country between the two ranges is dotted with lakes and groves of aspen. From a small hill near the fort I counted forty-seven lakes.

Touchwood Hill Fort, 16th August.—Arrived at the Fort after sunset last evening. It is situated on the south-east flank of the range, and from a hill close behind it an extensive view of the country is obtained. Heart Hill or *Ka-ou-ta-at-tin-ah* is about seven hundred feet above the general level of the plain, and seven miles in an air line N. 12° W. of the post. The general direction of the range is N. 26° E. It appears to consist of a series of Drift Hills, many of which rise in rounded dome-shaped forms from the summit plateau. The Last Mountain bears S. 26° W., about 25 miles distant from the post, and the end of Long Lake, as it was pointed out to me by the guide, bears W. 37° S., distant from the fort a good day's journey, or about 30 miles. The Little Touchwood Hills bear south-east, and have a general direction parallel to the main range. At the foot of the Heart Hill and on its northern flank is a lake about five miles long, running east and west close to its foot, and is said to contain white fish. Devil's Lake, which is connected with Last Mountain Lake, lies about 40 miles due west of the post.

The garden or rather the remains of a garden in the rear of the fort, produces every variety of vegetable grown in Canada, but the efforts to cultivate it are almost abandoned in consequence of the depredations committed by the Indians from the prairies, when they arrive in autumn with their supplies of provisions, (buffalo meat and pemican). A few of the lakes near the fort are known to contain fish, and it is probable that all of the large fresh water lakes contain them. The officer in temporary charge of the post stated that the people here had only known of the existence of white-fish in the Last Mountain Lake for three years; they are now taken in the fall, and it is probable that the fishery recently established will become of great importance to this part of the country. The Plain Crees are not fishermen like the Ojibways; they did not know how to catch fish when the attention of people at the Touchwood Hill Fort was first directed to the treasures of Last Mountain Lake. Mr. Hoover, the officer in charge at the time of my visit, told me that he had first observed the white-fish under the ice in November of 1854, and since that period they have established a fishery which provides the fort with an ample supply for winter consumption.

The timber on the Touchwood Hills is nearly all small and of recent growth; fires years ago destroyed the valuable forest of aspen which once covered it. The remains of the forest are still seen in the forms of blackened poles either standing erect or lying hidden in the rich covering of herbage which is found everywhere on the south-west flank of the range. Last year the grasshoppers visited the Touchwood Hills and deposited their eggs. This year the new brood consumed every green leaf in the garden, and made local ravages in the surrounding country. They took their flight on the 28th July for the south-east, and during the period of my visit but few were to be seen. So rich and abundant is the vegetation here, that horses remain in the open glades all the winter, and always find plenty of forage to keep them in good condition. The cows are supplied with hay; the horses are worked during the winter, either journeying to Fort Pelly or to the Last Mountain Lake to fetch fish. The white-fish weigh on an average 7 lbs., but 10 lbs. each is not uncommon. Buffalo congregate in the beautiful prairie south of the fort every winter, sometimes in vast numbers.

During the greater part of the night we were disturbed by a noted conjuror who was performing his ceremonies over the suffering form of an invalid woman who lay in his medicine tent near to the fort. His drum and song were heard nearly the whole of the night, and his incantations are described in another chapter as well as the remedy for the sickness of the poor squaw, which the conjuror suggested as infallible.

August 17th.—Snow falls on the Touchwood Hills to the depth of two feet and a half in the woods, and in the plain where aspen groves are numerous it is not unfrequently found one foot and a half deep. In the great prairie south, where the herbage is short, the snow is drifted off by winds; the

climate of the Touchwood Hill is evidently very humid. Thunder storms appear to travel in the direction of this range and occasion a copious precipitation as they pass over it. Not only are lakes very numerous and well supplied with water, but there are several living streams flowing from the range. Indeed the whole country from the Touchwood Hills to the Riding Mountain, including the country about the head waters of the Assiniboine is dotted with innumerable lakes, annually replenished by summer rains.

A range of hills joins the Greater and Lesser Touchwood Hills, having a course nearly north-west and south-east, or at right angles to those of the main ranges. In this subordinate range there are many conical hills, some of them well wooded up to their summits, but the forest trees are small. The trail to Fort Ellice winds round the base of conical hills, past small lakes and aspen bluffs, through luxuriant herbage, and over an excellent soil. About nine miles from the Fort it begins to ascend the eastern flank of the Little Touchwood range, and gently winding up it for several miles it finally reaches an extensive marsh which occupies a portion of the summit plateau. The marsh is but the introduction to numerous lakes, which continue to diversify the country in all directions.

On the following day, we entered a region differing in many points from the rich tract we had left. Gravelly hills and areas of coarse drift sand form the surface of the country for a few miles; they are succeeded by a number of curious depressions or hollows, circular or oval in form, and varying from one quarter to one mile in diameter, often with a lake in the centre, but without visible outlet. The land is high in which they occur, and forms a ridge running nearly north-west and south-east, like the general direction of the hill ranges before described, but the country is so undulating that it is difficult to ascertain the true character of the surface until we arrive at the summit plateau. Here boulders are seen; the sand is coarse and mixed with a little clay, so as to resemble a coarse gravelly loam, on the ridges and hills, as well as on their flanks, but in the hollows and valleys the soil is excellent and the herbage very luxuriant.

August 19th.—The view this morning from the summit of a mound revealed a rolling treeless prairie stretching on all sides and bounded only by the horizon. The wooded range of Pheasant Mountain appears low in the south-west, serving only to destroy the uniformity of the general outline. Numerous lakes, ponds and marshes are visible in every direction, covered with wild fowl. The soil in low places is good, supporting long grass which afforded fine pasturage for our cattle. The ridges and mounds are gravelly, and a few boulders of the unfossiliferous rocks are seen here and there. It is remarkable that east of the Touchwood Hills no limestone boulders have been noticed, but limestone gravel is common.

The Pheasant Mountain runs north-east and south-west, and may be twenty miles long. The wet grass reminds me that the dews in the Touchwood Hills are very heavy and abundant at this season of the year. Last night, dew was deposited a few minutes after the setting of the sun, although the sky was cloudy and prevented direct radiation. This phenomenon has been noticed several times; the setting of the sun appears to admit of the cooling of the air sufficiently to allow the dew point to be quickly attained on the surface of vegetables, notwithstanding the screen of clouds which must necessarily obstruct radiation into space, but it would also appear to show that the temperature of the clouds must be very low. With the thermometer at 65° in the air, ten minutes after sunset, and under a cloudy sky, I have observed dew form three times since leaving Fort à la Corne. On clear nights, dew has always been copiously deposited during the summer; so much so at times as to wet the tents. This fact shows not only a certain humidity in the air, but the sudden reduction of the temperature when the sun sinks below the horizon.

On the morning of the 20th, hoar frost on the Buffalo robes reminded us that the season was advancing. We crossed to-day a rapid stream with a swift current, ten feet broad, and one and a half deep, flowing into the Qu'Appelle. It was thought to be Cut Arm Creek; it meanders through a prairie covered with low willows, and named the Willow Prairie; it embraces an extensive area of excellent land, sustaining fine pasturage. Limestone boulders were seen again to-day. The country preserves a uniform level character, with a few gravelly ridges and mounds; neither lakes nor marshes are numerous, and timber for fuel is very scarce. Little Cut Arm Creek, which we crossed this morning, flows in a ravine about 80 feet deep and 400 broad. Lakes begin to appear again. The prairies are more rolling and are crossed by ridges, which preserve a certain amount of parallelism, generally from north-east to south-west. The aspen replaces the willow in small clumps, and after passing Big Cut Arm Creek, the country is undulating, attractive, and very well watered. Large hills appear near the Big Cut Arm, which flows in a valley 1,200 feet broad, and 180 feet deep, resembling that of the Qu'Appelle, from which we are not now far distant. We camped in the evening near to Spy Hill, called also *Ka-pa-kam-a-ou*, or 'Some-one knocked.'

August 22nd.—The Blue Hills across the Assiniboine are visible from Spy Hill, so also are those on the Qu'Appelle. Spy Hill is a gravelly eminence about 120 feet above the prairie. Near it boulders of the unfossiliferous rocks are very numerous, and of large dimensions. One of gneiss, measured 13 feet in diameter. Our old hunter remarked that the aspen groves were much more numerous west of Spy Hill at the present time, than when he first remembered the country forty-three years ago. After crossing a sandy prairie flanked on our left by numerous bare sand hills, we reached the Assiniboine at the mouth of the Qu'Appelle early in the afternoon, and having crossed that river in preference to the Qu'Appelle, we had the pleasure on the following day of meeting Mr. Dickinson within a mile of the Ferry, on his way to Fort Ellice, our place of rendezvous. The distance from Fort à la Corne to Fort Ellice by the route we followed is three hundred and thirty-six miles.

We spent two days in the valley of the Assiniboine near Fort Ellice, occupying ourselves in making a section of the valley. We found its breadth to be one mile and thirty chains, and its depth two hundred and forty feet below the level of the prairie on either hand. The river is one hundred and thirty-five feet broad, with a greatest depth of 11.9 feet, a mean depth of 8 feet, and a current flowing at the rate of one mile and three-quarters per hour.



On the 24th we set out on our return to the Settlements. Our route lay on the flanks of the Duck and Riding Mountains, and through a country admirably adapted for farming purposes. On the morning of the 27th, the herbage was covered with hoar frost, but without any injury to vegetation. Ponds and lakes are very numerous on the flanks of the Riding Mountain, but as far as our opportunities enabled us to judge, the whole country, with the exception of narrow ridges, possesses a rich black fertile mould, supporting very luxuriant herbage, and on the mountain an ample supply of timber, consisting chiefly of aspen of large dimensions. The Riding Mountain consists of a succession of slopes and plateaux on its south-western side; the ascent is almost imperceptible to the thick impenetrable forest which covers the highest plateau.

On Saturday, 28th August, we arrived at the Little Saskatchewan or Rapid River, which Mr. Dickinson had explored for a distance of one hundred miles from its source. The valley of this river is extremely beautiful and fertile until within a few miles of its junction with the Assiniboine; it offers the most attractive and desirable place for settlement in any part of the country we have explored. The stream abounds in fish; the flats in the valley are covered with the richest herbage; timber, consisting of aspen, poplar, and oak, is abundant; the prairies on either side are clothed with the greatest luxuriance of vegetation; the scenery is very attractive, and the river navigable down stream for canoes and batteaux to the Assiniboine. Where the Rapid River enters the Riding Mountain balsam and white spruce appear, and our explorations on the east flank of the range showed that large birch, spruce, poplar, and aspen flourished on the summit plateau.

Fires here as elsewhere have damaged the forest which once covered the country. Vast numbers of young oak and aspen are springing up in all directions on the prairie fringing the river near our trail. Birds are very numerous in this region; every lake contained duck, with their young. The aspen groves and willow clumps were alive with grackle and yellow birds congregating in flocks. Humming-birds were also observed, as well as the American cuckoo and the solitary thrush. In the marshes, herons, cranes, and bitterns are numerous. Hoar-frost again noticed early this morning.

In a brook emptying into Rapid River, I found an exposure of the Cretaceous shales before described as occurring on the Assiniboine and the Little Souris. The rock was very fragile, and contained a few fossils in an imperfect state of preservation.

On the 29th we reached the south-eastern termination of the Riding Mountain, and obtained a fine view of the successive steps of which it is composed. These were three in number, each step being separated by a gently sloping plateau. The entire mountain appeared to be densely covered with forest trees. The country through which we passed to-day was very wet and swampy in many places. On the ridges the soil is dry and gravelly: we are, in fact, descending the Pembina Mountain, which being here extended over a great breadth, is not easily recognized. In the afternoon we arrived at a beautiful ridge, running N. 12° W. and S. 12° E. One side of this ridge is partly excavated by the White Mud River, and exhibits finely stratified gravel, consisting almost altogether of small limestone pebbles, with a few belonging to the unfossiliferous rocks. The ridge is gently sloping towards the east, and precipitous towards the west,—having on either hand a level country, higher on the west side than on the east. I have no doubt this ridge is either a continuation of the Big Ridge on the Assiniboine and Red River, or of one at a higher level in the rear of those characteristic lake boundaries. Some fine oak grows on the banks of White Mud River near the ridge; and ash-leaved maple begins to show itself again.

August 30th.—Our course to-day lay through the prairies drained by White Mud River. This tract of country is second only in beauty and fertility to the valley of Rapid River. Not only is the herbage of surprising luxuriance, but the trees in the river bottoms are of very large dimensions, and consist of oak, elm, ash, maple, aspen, and poplar. Near the crossing place there is a fish weir, where large quantities of pike, suckers, gold-eyes, and other species, are taken by the people of Prairie Portage, who have established a fishing-station here, as well as one at Lake Manitobah, some miles further east.

The woods fringing the river at the crossing place are very important. The oak and elm are of the largest size; 2 ft. to 2 ft. 6 in. in diameter, with tall, clean trunks. The hop and vine twine around the underbrush, and give a very attractive appearance to the belt of woods which fringe White Mud River.

Wishing to ascertain the character of this stream to its outlet, we gummed the canoe, and once more launched it for a short voyage down the White Mud River, to the fishing-station on Lake Manitobah. Mr. Dickinson proceeded down the river, the carts, with Mr. Hime, journeyed on towards Prairie Portage, while I rode to the fishing-station, in company with a half-breed who was familiar with the history and progress of the station since its commencement.

We soon arrived at Rat River, a stream of much interest in connexion with the floods of the Assiniboine. Down its valley the water of that river, during freshets, flows into Lake Manitobah, and by making a very shallow cut, a permanent communication, in time of high water, could always be maintained. The fishing-station at the mouth of White Mud River consists of about half-a-dozen houses, which are only tenanted during the fishing-season. Very large quantities of white fish are caught here, and no doubt when the demand requires it the station at the mouth of White Mud River will become an important source of supply. The Assiniboine prairies extend to the banks of Manitobah Lake, and their elevation as seen here and at Oak Point is not twelve feet above the level of that extensive but shallow sheet of water.

We camped on the banks of Rat River, and the following day made a nearly due south course through a rich but treeless prairie to the Prairie Portage on the Assiniboine. In making this traverse we passed the shallow, winding, but dry bed of a brook several times, a tributary of Portage River. In wet seasons this bed is occupied with drainage water from the Bad Woods, while Rat River rises within three miles of the Assiniboine in the same locality. The valley of Rat River and of the dry

water-course may yet become of vast importance if it should ever happen that the commercial inducements for effecting a steam communication with the south branch, by way of the Qu'Appelle Valley, should lead to the construction of works for that purpose.

On the 1st of September we arrived at Prairie Portage, and reached the settlements at Red River on the 4th of September, after an absence of nearly three months. Our course from Prairie Portage lay through the prairies which were described in my report for 1857.

## CHAPTER VII.

FROM FORT À LA CORNE TO THE GRAND RAPID OF THE SASKATCHEWAN—FROM THE GRAND RAPID TO THE RED RIVER SETTLEMENTS *viâ* THE WEST COAST OF LAKE WINNIPEG.

Instructions—Equipment—Departure from Fort à la Corne—General direction, current, and breadth of the Saskatchewan, and character of its Valley—Country through which the river flows well adapted for settlement—Sickness and discomforts—Reach Pemican Portage and Cumberland House—Description of Cumberland—The Saskatchewan and surrounding country between Cumberland and the Pas—The Pas—Christ Church—Gradual depression of the country bordering the river—Alluvial flats—Marshes—Delta—Muddy Lake—Rock exposure—Marshes and mud flats—Cedar Lake; its situation and dimensions—Surrounding country—The Saskatchewan between Cedar Lake and Lake Winnipeg—Cross Lake Rapid: its dimensions—Enter Cross Lake—Meet a Brigade of Boats—Cross Lake: its dimensions and altitude—Surrounding country—The Saskatchewan east of Cross Lake—Rapids: their dimensions—Smooth Reach—Drift Clay Banks—The Grand Rapid: Portage; Running the Rapid; its dimensions; character of its excavated bed; magnificence of the upper portion of the cataract; mode of ascending it; remarks in relation to surmounting this barrier and making the Saskatchewan available for steam navigation—Indian Encampment—Lake Winnipeg—Cape Kitchinashi—Storms—Detained on an island—Windbound on mainland—Tempest—Repulsed by the wind—Character of the coast: the sand beaches and swamps—War Path River—Verifying rate of canoe—Tracking—Limestone Point—Encountering a head wind and storm—Lightening canoe—Starving Indians—The Little Saskatchewan—Recapitulation—The prominent features of the coast—Formation of Cape Kitchinashi—Limestone exposures—Tributary streams—General character of the country—Indian Chart—Inaccuracy of the Maps of the Lake—Depart from the Little Saskatchewan—Windbound again for three days—Provisions exhausted—Contrary Winds—Driven back and stopped—The Cat Head—Windbound again by a hurricane—Barrier of boulders—Eagle—Stopped by foul winds again at the Wicked Point—Pike Head and River—Opportune supply of Fish—Wide traverse to Grindstone Point—Grassy Narrows—Sandy Bar—Arrive at the Settlements—Conclusion.

FORT À LA CORNE,

August 9th, 1858.

DEAR SIR,

You will start in a canoe from Fort à la Corne and proceed down the Saskatchewan River into Lake Winnipeg, thence by the west coast of that lake to the mouth of Red River, thence to the Settlement.

In your progress down the Saskatchewan you will make as complete a survey of the river as circumstances will permit, ascertaining its course, rate of current, volume of water, fall, and extent and nature of the obstacles to navigation. It is desirable from time to time to make sections of the river and its valley, to level the rapids with precision, ascertain the height to which the water rises and the extent to which it falls in the course of a year.

The west coast of Lake Winnipeg should be attentively examined, and specimens of all rock exposures collected.

The object of this exploration is to obtain information respecting the main Saskatchewan, similar to that which has been acquired during the recent exploration of the South Branch from "the River that turns" to the Grand Forks.

John Fleming, Esq., Assistant Surveyor.

I am, &c.

(Signed) HENRY Y. HIND.

### MR. FLEMING'S NARRATIVE.

DEAR SIR,

In compliance with your request, I shall endeavour to describe the more prominent topographical features and the general character of the country which came under my observation, while in control of the branch expedition with which you were pleased to entrust me; giving some of the results of the exploratory survey of the Saskatchewan and Lake Winnipeg, conducted according to your instructions dated Fort à la Corne, August 9th, 1858; and such additional information as I was enabled to obtain by instrumental operations and otherwise. In reporting my progress from the time we separated at Fort à la Corne on the 9th of August, until we again met at Selkirk Settlement on the 16th of September 1858, I shall avail myself of copious extracts from notes daily recorded on the journey.

You are aware that the equipment available for the service to be performed was that with which we surveyed and explored the south branch of the Saskatchewan; consisting of a three fathom birch bark canoe, manned by two voyageurs (Wigwam, an Ojibway, and James Louis, a Black-foot Half-breed,) and provided with the necessary instruments for the track survey and for making the requisite observations at intervals. Wigwam continued to act as bowsman, and Louis as steersman; both were expert canoemen, and proved themselves eminently trustworthy throughout, and reliable in time of difficulty and danger. The canoe being leaky, owing to injuries it had sustained in crossing the plains from Red River to the elbow of the south branch, was the source of much trouble until we reached Cumberland House, where, through the aid of the letters with which you provided me, and the courtesy of the gentleman in charge, I was enabled to procure a new canoe and some other necessities.



Before proceeding on our journey, and commencing the continuation of the survey of the Saskatchewan, we were occupied some time near Fort à la Corne in making a transverse section of the river, ascertaining its fall by levelling, and measuring its rate of current by the log (adopting the mean of a series of observations); so that it was at a late hour when we made our departure, and we did not accomplish more than 23 miles the first day.

The general direction of the Saskatchewan from Fort à la Corne towards Cumberland House is north-easterly, as will be observed on referring to the plans which have been protracted from my field notes. The current continues strong for a considerable distance below Fort à la Corne, where the average rate was found to be three miles an hour. In some places the mean velocity of the current exceeds this, as I ascertained by repeated trials; and at the points a small rapid is frequently seen, generally caused by a submerged spit or reef of boulders and gravel protruding into the river; but the water is only agitated in its passage over these shoals, which are always on one side of the river; in the bays opposite the points it is quite smooth and deep, averaging in the channel 19 feet.

At Fort à la Corne the breadth of the Saskatchewan (which I obtained by trigonometrical measurement) is 965 feet, and its immediate banks are high; the sides of the valley, which are much higher, being no great distance from the river. The breadth of the river continues very uniform, but its immediate banks become gradually lower, the hill sides of the valley at the same time diverging. About 20 miles below Fort à la Corne the banks of the river are low, and the general character of the adjacent country considerably changed. The high cliffs before seen at the great bends of the river give place to rich alluvial flats, supporting a forest of fair sized balsam-spruce and poplar, and the valley becomes so broad that the high banks are nowhere observed.

The second day of our journey, August 10th, we embarked at 6 a.m., and passed during the day the "Big Birch Islands," and many others; they are all alluvial deposits, and some of them are overflowed in spring. The banks of the river are now quite low, and the country on either side is very flat; but it still continues well adapted for agricultural purposes and settlement; the soil being a rich alluvial loam of a considerable depth, well watered and drained by many fine creeks, and clothed with abundance of timber for fuel, fencing, and building. In some places stony points projecting into the river contract it to a width of five or six chains; stretching out from these points there are shoals over which, as before observed, the current is very strong and rough. Among the islands the river attains a width of from 25 to 30 chains, but where it is broad its depth is diminished in many places by mud flats. We stopped to camp for the night about half-past 6 p.m., nearly 53 miles from where we started in the morning.

August 11th.—We left our last night's resting place at day-break this morning, and passed through an excellent tract of country all day; the soil on both sides of the river consisting of a very rich alluvial deposit, 10 feet in thickness, above the surface of the water, well wooded with large poplar, balsam-spruce, and birch; some of the poplars measuring two and a half feet in diameter; and, as far as I was enabled to ascertain, the land continues good for a great distance on either side, but more especially on the south side of the river. In many places the river is studded with large alluvial islands supporting a most luxuriant growth of poplar and willows. Among these islands the channel is sometimes intricate, being occasionally interrupted by sand-bars and snags. We encamped about 6 p.m., having attained a distance of about 47 miles to-day.

On the 12th August we embarked about 4 a.m., although I could only communicate with the men by signs, being unable to speak, owing to a very painful swelling in the throat with which I was seized soon after leaving Fort à la Corne. This distressing malady, from which I fortunately rapidly recovered, was so severe that for nearly three days I could scarcely eat or drink. It was brought on probably by exposure to the frequent rains and lying in wet clothes. The night of the 11th August was to us a sleepless and most uncomfortable one; a terrific thunderstorm came on after dark, and having no tent to protect ourselves from the driving rain, we were drenched to the skin, and had to lie in a pool of water all night. Our constant tormentors, the mosquitoes, were also excessively annoying.

The general character of the country we passed throughout the day is excellent, the soil being rich, and the timber of fair quality. The depth and breadth of the river is variable; in one or two places it is impeded by mud flats and shoals, sometimes holding snags and sawyers. About noon we came to the mouth of a tributary stream 100 feet broad, flowing into the Saskatchewan from the north, which we supposed to lead to Cumberland House, as it corresponded to the description given to us at the Nepoween, but being desirous of keeping the main river, agreeably to your instructions, we went on until reaching an old carrying place, called "Pemican Portage," leading to the fort, where we discharged and hauled up the canoe. I despatched Louis to the fort, and he returned in the evening reporting the road very wet and marshy. We came to-day nearly 29 miles, so that the distance between Fort à la Corne and Cumberland, by the windings of the river, is upwards of 150 miles.

August 13th.—Owing to the thickness of the rushes and the shallowness of the water in many parts of the marsh between the Saskatchewan and Pine Island Lake, we had to go over to Cumberland this morning in the empty canoe, pushing it through the marsh until we reached a strip of dry ground, about half a mile wide behind the fort. Mr. Edward McGillivray, the gentleman in charge *pro tem.*, received us very hospitably. I obtained from him some pemican and flour, and got him to procure for me a new canoe, for which I had to wait, as it was not quite finished. In the forenoon a brigade of boats from the McKenzie River arrived and departed *en route* to York Factory. One of the boats contained Mr. Anderson, Chief Factor, who was going direct to Red River and Canada. I mention this because, although Mr. Anderson left Cumberland three days before us, in a boat of four or five tons burthen, well manned and equipped, and infinitely better fitted for encountering the boisterous gales of Lake Winnipeg than our little canoe, we reached the mouth of Red River only 24 hours after him.

On Saturday, the 14th August, we were aroused at daybreak by the singing of the voyageurs of another brigade of boats just arriving. It proved to be a detachment from York Factory, bringing J. G. Stewart, Esq., Chief Trader, in charge of Cumberland, with Mrs. Stewart, and Mr. Spencer. Our canoe was not finished till late in the afternoon, when I would have started had I been supplied with a guide for Cedar Lake and the Grand Rapid; but the only man that was competent and willing to go being one of Mr. Stewart's boatmen, and they having received their usual holiday and allowance of rum on reaching their destination, no arrangement could be made with him. I was consequently compelled to remain till Monday. During the day Mr. Stewart, from whom I received the most kind and hospitable attention, opened some packs and enabled me to get one or two articles of clothing, of which I stood greatly in need.

Sunday, August 15th.—A beautiful day. Another brigade from Methy Portage came in and left about noon to-day; bound for York Factory under the pilotage of the veteran guide, L'Espérance.

Cumberland House, the chief depôt or fort of the Cumberland District of the Hon. Hudson's Bay Company, is situated on the south shore of Cumberland or Pine Island Lake; in latitude  $53^{\circ} 57' N.$ , and in longitude  $102^{\circ} 20'$  west of Greenwich, (according to Sir John Richardson.) It is about two miles in an air line north of the Saskatchewan, on the north side of what is called "Pine Island," a tract of land of considerable extent between the Saskatchewan and Pine Island Lake, isolated by two branch rivers connecting the lake with the Saskatchewan. The stream we passed before reaching Pemican Portage is the western connexion, and bears the name of Big Stone River; it is about six miles long by its windings, and about two chains wide. When the water of the Saskatchewan is high, it passes through this channel or canal into Pine Island Lake, and when low, the water from the lake flows into the Saskatchewan. At the time the accompanying survey was made, (16 August, 1858,) Big Stone River was flowing into the Saskatchewan, at the rate of one and a half miles an hour. The eastern connexion is about the same size as Big Stone River and joins the Saskatchewan some distance below Pemican Portage; it is called "Tearing River," and is the route followed by the McKenzie River boats. The Saskatchewan boats go by these rivers when they require to call at Cumberland.

The country around Cumberland is low and flat; the soil in some places is a stiff clay, but in general it consists of a gravelly loam a few feet in thickness, covering an unexposed horizontal bed of white limestone, and supporting a light growth of poplar and birch. Occasional groves of spruce (the so-called pine of Rupert's Land, from which Pine Island derives its name,) are seen here and there. The land being so little raised above the lake and river, a great deal of it is submerged during the spring floods, and some portions upon which the water remains become marshes and swamps; but many of them could be drained and improved without much difficulty.

There is a considerable extent of ground enclosed and under cultivation at Cumberland. I observed a field of barley, and another of potatoes, both looking well, within the fort palings; and there is an excellent garden adjoining the chief factor's house; the soil appeared rich and fertile, bearing an exuberant growth of rhubarb, cabbage, peas, carrots and other vegetables.

Cumberland House being at the junction of two great lines of water communication, one leading from the Pacific, and the other from the Arctic Sea, to the Winnipeg basin, is a place of importance, and was formerly one of the Company's principal depôts. Within the fort there are a number of buildings, one of them (the store-house) is a very large edifice, containing extensive machinery and appliances for pressing and packing furs, and making pemican. Cumberland has been visited by several celebrated Arctic explorers. In the garden there is a sun-dial which was brought from England and erected by Sir John Richardson, and Sir John Franklin remained here a portion of the winter of 1819, while on his first overland expedition to the Polar Sea via the McKenzie River.

August 16th.—We left Cumberland this morning in our new craft, a three-fathom birch bark canoe. Not being so deep nor of the same beam as the old one, our load of baggage, instruments, and provisions, sank it to within a few inches of the gunwale, rendering it rather unsafe in a heavy sea. I succeeded in getting an Indian guide, through the kindness of Mr. Stewart, but could not prevail upon him to accompany us farther than the Grand Rapid; which ultimately proved fortunate for us, as had he continued with our party, the pemican, upon which we had now solely to depend till we reach Red River, would have been exhausted much sooner than it was. We returned to the Saskatchewan via Big Stone River; and passed the mouth of Tearing River about 14 miles farther down. Between the mouths of these rivers, the Saskatchewan flows occasionally among low alluvial islands, wooded with small poplar and willows; and in many places its depth is lessened by mud-flats and sand-bars; its banks are here low alluvial flats, only two or three feet above the water, covered with grey willows and sapling poplar. The current in this part of the river is slacker than before, the average rate as measured by the log being two miles an hour. We camped about a quarter to seven, p.m.; but before camping, made a section of the river, which gradually increases in breadth and volume of water; a number of soundings, taken at intervals across the river with the hand lead, showing a mean depth of 20 feet; and the width of the river at this point as computed from observations made with the sextant being 980 feet. I levelled about three-quarters of a mile along the bank of the river here, to ascertain its fall.

August 17th.—We embarked at four a.m., and observed no material change in the general character of the river and adjacent country during the day. The banks of the river are similar to those already described, being low alluvial flats not exceeding two feet above the water, and covered with willows and patches of balsam-poplar. The tract of country back from the river is rather low and wet; and the Indians make portages in one or two places from the river to small lakes north of it. The current is now much slacker than before, being only one mile to one and a half miles an hour.



About 13 miles below Tearing River, Fishing Weir Creek falls into the Saskatchewan; by which, during high water, boats sometimes go to Cumberland. About 14 miles farther down, at what is called the Big Bend, the general direction of the Saskatchewan changes from a north-easterly course, which it has maintained from the Grand Forks, to a south-easterly one. This Big Bend is the most northerly point on the river, being very near the 54th parallel of latitude. The Pas or Cumberland missionary station, where we arrived about sunset, is nearly 22 miles below the Big Bend. About three miles above, or west of the Pas, the Saskatchewan makes an abrupt semi-circular curve, (called by the Indians "The Round Turn,") causing eddies and whirlpools, the river being at the same time diminished in width. The depth of the river was here found to be 33 feet, and its breadth about 10 chains. Near the Round Turn, there is a wooded ridge, upwards of 50 feet high, about half a mile from the north bank of the river. About three-quarters of a mile above the Pas, Root River, a long affluent with a width at its mouth of two chains, empties into the Saskatchewan.

The Pas, or Cumberland Station is a missionary post of the Church of England, situated at the confluence of the Saskatchewan and the Basquia River, a tributary about three chains wide at its mouth. Christ Church, as will be seen in the sketch I made of the Pas, is a neat and rather imposing edifice; and it seemed like getting back to civilization again after all our wayfaring, when, on rounding one of the majestic sweeps of the river, the pretty white church, surrounded by farm-houses and fields of waving grain, burst unexpectedly upon our view. It was on a calm summer's evening, and the spire was mirrored in the gliding river and gilt by the last rays of the setting sun.

The Church is situated on the right or south bank of the river; near it is the Parsonage, a large and commodious building, occupied by the Rev. E. A. Watkins, the present incumbent. Adjoining the Church there is a neat school-house and several dwelling-houses; and on the opposite side of the river I counted seven houses, but they seemed to be uninhabited and in a dilapidated condition; the Indians for whom they were erected disliking a settled life devoted solely to the pursuit of agriculture; and preferring the wandering and precarious life of a hunter in their native wilds. The river banks at the Pas are 10 to 12 feet high, composed of light coloured drift clay holding boulders and pebbles of limestone, and the surface soil is a dark gravelly mould well adapted for cultivation; but the surrounding country is said to be low and swampy with marshy lakes. Barley and other crops growing here looked well, and were just ripening. Mr. Watkins' garden also looked well, and he kindly supplied us with some onions to make our pemican more palatable.

August 18th.—Having to make some observations this morning, and Mr. Watkins wishing to send some letters with me, we did not leave the Pas till about 9 a.m. From the Pas the Saskatchewan flows in a north-easterly direction through a low flat country wooded with scrub poplar and balsam-spruce for about eight miles; when again turning suddenly it resumes its south-easterly course, forming a great bend or elbow. About a mile below the mission, a branch, three chains wide, leaves the Saskatchewan, and cutting across the tongue of land embraced by this elbow, affords a navigable passage about three miles shorter than by the main river; although it is the route generally followed by the boats, had I availed myself of it I must have left a considerable portion of the Saskatchewan proper unsurveyed.

About six miles from where this branch or canal rejoins the Saskatchewan, another branch, leading from Moose Lake and House, falls in; before uniting with the great river it separates into two branches forming a Y, the distance between the mouths being about half a mile. From the Pas to this point the character of the country bordering the river gradually deteriorates, the banks becoming lower and lower, and the timber more scrubby and scanty. The alluvial flats are in many places only one to two feet above the water, and they are at some points covered with driftwood, showing that they are flooded at certain seasons.

We stopped to cook dinner opposite the Moose Lake branch, where, by ascending a tree, I succeeded in getting a view of the surrounding country. The banks are here three feet above the river, supporting a thin strip of grey willows along the water's edge; and about half a chain back from the river there commences an extensive marsh or swamp with rank reeds and rushes, interspersed with ponds of open water and dotted with clumps or islands of balsam-spruce and willows as far as the eye can reach. From Moose Lake Fork to where we camped, about 16 miles further down, a slight improvement is observed on the immediate banks of the river; occasional groves of young ash, elm, and ash-leaved sugar maple are seen, but the flats behind are generally very low, and covered only with willows and sapling poplar.

We started on Thursday, August 19th, at break of day with wet baggage and blankets. A thunder-storm with heavy rain came on during the night, and the want of a tent was again severely felt. About four miles below our camping place one or two branches leave the main river and flow to the north into a marshy expanse of water, about one mile broad and two to three miles long, called "Marshy Lake" on the plans returned. Between Marshy Lake and Cedar Lake are seen all the characters of a great alluvial delta. The Saskatchewan ramifies into many different channels, some of them return to the parent stream forming large islands, and several flow into Muddy Lake and other expansions of the main river, before finally emptying into Cedar Lake.

The country bordering the Saskatchewan from Marshy Lake towards Muddy Lake and Cedar Lake, consists of low mud flats not exceeding 18 inches above water, supporting along the river's edge a belt of willows, alder, dogwood, and long rank grass; in the rear is an extensive marsh with occasional islands of small poplar and spruce. These flats, being so little above water, are flooded every spring after the ice breaks up, and no camping place can then be found for a considerable distance up the river. A very rich mud is deposited during these floods, raising and extending the flats every year.



Muddy Lake, near which we were compelled to remain for some time owing to a boisterous head wind, is apparently a dilatation of the Saskatchewan in a northerly direction; it is about two miles wide, and extends to the north for about four miles. We effected a landing on a point of the river four to five feet above the level of the water, where we found an exposure of light coloured limestone in horizontal beds along the water's edge, and several large detached masses adjacent. This was the first outcrop of rock *in situ* we met with on the main Saskatchewan, and I made a very careful search for fossils, but, being unsuccessful, had to content myself with some specimens of the rock. On examining the point it was discovered to be an island eight chains long and four broad, with the river on one side, and on the other a vast reedy marsh interspersed with large ponds. This island is a favourite camping and fishing-place of the Swampy Indians, there being on it a clump of good-sized poplar, the only timber fit for fuel for miles around; and here they hold their great councils, dog feasts, and medicine dances. Its name in Swampy is *Kash-ke-bu-jes-pu-qu-a-ne-shing*, signifying, "Tying the mouth of a drum."

Between Muddy Lake and Cedar Lake the Saskatchewan meanders through an immense marsh with tall reeds and rushes. It is now no longer an integral stream but is divided into a maze of reticulating branches. According to our Indian guide, land is being formed here very fast; and what is now marsh and mud flats was, within his recollection, open navigable water for a considerable distance back from where the Saskatchewan at present debouches into Cedar Lake through its numerous mouths. In one or two places we saw the trunks and branches of stranded trees sticking above water, where alluvial flats or shoals of mud and drift timber are in course of formation.

The Indians informed me that beyond these extensive alluvial flats and shallow marshes there is not to their knowledge anything but "muskeg" or boggy swamps for a very great distance on either side. I could see no high ground of any kind, and the character of the country bordering the Saskatchewan as above described may be said to continue back from the river for many miles.

Cedar Lake (so called from the occasional groves of cedar—a tree rarely seen in Rupert's Land—growing on its shores, particularly at its western extremity), is an expanse of water of considerable extent in which the turbid waters of the Saskatchewan are allowed to disseminate and settle before re-uniting into one great river and rushing down the Grand Rapid into Lake Winnipeg. It is situated in about  $53^{\circ} 15'$  N. latitude, and  $100^{\circ}$  W longitude; and is nearly 30 miles long, with a breadth at its widest part of about 25 miles; its coast line embracing an area of water of about 312 square miles. Cedar Lake being more than 60 feet higher than Lake Winnipeg, is consequently upwards of 688 feet above the sea level. The only tributary it has of any size, beside its principal feeder the Saskatchewan, is a branch leading from Moose Lake and House, which enters it from the north. I was unable to obtain soundings of the Lake in consequence of the high winds and stormy weather that prevailed during our voyage through it, but so far as I can learn it has sufficient depth of water for the largest craft, except at the west end, where the Saskatchewan is rapidly filling it up.

We entered Cedar Lake on the morning of the 20th August, and coasted along the north shore till about noon, when we ran into a fine little harbour to eat dinner after making a long traverse. In the afternoon, while crossing a wide and deep bay or sound stretching far to the north (the extremity being below the horizon) a stiff breeze sprang up, soon raising a very heavy sea, in which our canoe became almost unmanageable, pitching tremendously and shipping a great deal of water. On the 21st August we breakfasted at the Rabbit Point, and entered the portion of the Saskatchewan issuing from the east end of the lake about noon.

The northern coast of Cedar Lake is deeply indented and very low, and the country continues flat for a long distance back. At some of the points and on many of the islands along the coast, there are exposures of limestone in horizontal beds, the top of the strata being a few feet above the surface of the lake. It is to be regretted that, owing to the stormy weather and the rate at which we were obliged to travel, no opportunity was afforded for collecting specimens. The main land and islands being well wooded with balsam-spruce, birch, poplar, tamarack, cedar, and Banksian pine, could furnish an abundant supply of fuel; thus offering, like the Saskatchewan, facilities to steam navigation; but a considerable portion of the land is reported to be swampy and unavailable for agricultural purposes.

The portion of the Saskatchewan between Cedar Lake and Lake Winnipeg is nearly 20 miles in length, and its general direction is easterly. Through this channel, the great volume of water brought down for many hundred miles by the main river, and its north and south branches, together with that collected by many tributaries through a wide extent of country, is disembogued by one grand mouth into Lake Winnipeg.

Where the Saskatchewan emanates from Cedar Lake the bed of the river is divided for a short distance into two channels, by an island. We entered the smaller or south channel and found it only two or three chains wide, for a distance of about a quarter of a mile. At its narrowest part, near the beginning, the Indians have a fishing station, and white fish and sturgeon are caught there in abundance. Along the side of this water-course there is an outcrop of horizontal limestone, three to four feet in thickness, above the water, covered with a thin coating of vegetable mould, supporting small poplar, willow and dogwood. I brought away some specimens of the rock, but could find no fossils. The current in this channel, as in most places where the river is narrower than usual, is strong; measuring two and a half to three miles an hour.

About half a mile below Cedar Lake on the right or west bank of the river, which is now more than half a mile in width, is situated Cedar Lake House, a winter trading post of the Hon. Hudson's Bay Company, lately established, with a view to check or compete with the "Freemen" who come annually from Red River to trade with the Indians.



Between Cedar Lake and Cross Lake Rapid, a little below which the Saskatchewan expands into Cross Lake, the river is very broad and widens here and there into deep bays and funnel-shaped indentations. It grows narrower again, a little above the rapid, where a projecting point of limestone, obstructing the current, causes a small smooth rapid on the south side with a fall of about eight inches. The Cross Lake Rapid is occasioned by a band of limestone intersecting the bed of the Saskatchewan nearly at right angles; and this is the first interruption of any magnitude to the even flow of the river. The Saskatchewan is let down by this rapid about five feet and a half in a short distance. There is a large island near the south side of the river, extending the length of the rapid, and dividing it into two channels. The broadest or northern channel is that which came under my observation. It is about 30 chains wide, and is the route followed by the Hon. Hudson's Bay Company's boats. In order to ascend the rapid, the company's boats, of four to five tons burden, have to be "tracked" or dragged up with half cargo, and the other half of their load has to be carried over the portage, a distance of 230 yards. The fall from the west to the east end of the portage (obtained by levelling) is 4.08 feet, and from the east end of the portage to the quiet water below, about one foot and a half, making a total fall of 5.58 feet. Loaded boats run the rapid without difficulty, and if the channel were cleared of boulders and improved, it might be ascended by a powerful steamer.

Having spent some time in making observations at Cross Lake Rapid, it was late in the afternoon when we entered Cross Lake; where our Indian guide left us, although he had agreed to pilot us down the Grand Rapid. He expressed himself anxious to return to his family at Moose Lake, and could not be induced to go farther. During the return journey, upon which he set out in a little canoe that he picked up, coming down the river, he would have several days hard paddling against a swift current.

At the east end of Cross Lake we met Mr. Christie (a gentleman in the service of the Hon. Hudson's Bay Company, who had recently been appointed to the charge of Edmonton House), in command of a brigade of boats, *en route* from York Factory to Edmonton and the Rocky Mountain District. Mr. Christie's heavily laden boats (14 in number), were manned by a motley group of Indians, Half-breeds, Orkney-men, Norwegians, and Negroes; they had just made the laborious ascent of the Grand Rapid, and thus far their progress had been very slow. Mr. Christie represented the many difficulties which had to be contended with in a boat voyage; the detentions on the lakes by contrary winds; the strong currents and rapids that had to be encountered in ascending the rivers; and the difficulty of procuring men suitable for the work (each boat requiring six to eight experienced voyageurs), and he expressed a hope that the long talked-of steamers would soon make their appearance on Lake Winnipeg, to replace the present tedious, toilsome, and expensive mode of conveyance.

In reply as to whether there would be sufficient business to warrant the placing of steam vessels on these north-western waters, (irrespective of the establishment of a continental route to the Pacific, through British Territory;) I was informed that there would be plenty of freight to carry for the present requirements and traffic of Rupert's Land; as during the year (1858) no fewer than 167 freight boats of the largest class, belonging to private traders and merchants, as well as the Hon. Hudson's Bay Company, (many of them loaded with valuable furs,) had passed Norway House, at the northern outlet of Lake Winnipeg, *en route* to York Factory; and returned with heavy cargoes of merchandize brought by sea to York, consisting chiefly of the usual supplies for Selkirk settlement, ammunition, and a variety of goods for the prosecution of the Indian trade both by the Company and "Freemen." The aggregate quantity of freight transported by this fleet of boats from the sea-board to Lake Winnipeg and from thence distributed along its principal feeders would be upwards of 800 tons. It is well known that there are large quantities of goods imported by other lines of communication—chiefly through the United States Territory at present; and as the York Factory route is to be partially abandoned, a large portion of the importations of Rupert's Land will have henceforth to enter the Winnipeg Basin from the south, so that there will doubtless be sufficient commerce in view of the great water facilities afforded by the country, to encourage the initiation of steam navigation.

After remaining at Mr. Christie's encampment about an hour, we set off again in the hope of reaching the Grand Rapid before dark. We soon entered a rapid by which we were lowered about  $2\frac{1}{2}$  feet in a distance of 10 chains, followed, after an interval of smooth water by another about a mile long, but with an easy inclination, the descent in that distance not being above  $7\frac{1}{2}$  feet; it being nearly dark when the foot of the latter was reached, we camped for the night. (August 21.)

Cross Lake doubtless derives its name from its shape and the peculiar position it bears in relation to the Saskatchewan, of which it is evidently a dilatation. It is an oblong sheet of water, upwards of eight miles in length, having its longitudinal diameter at right angles to the general trend of the river; three miles is its greatest transverse diameter, and this breadth is about the distance between the termination and beginning of the bed of the river on either side of the lake. The altitude of Cross Lake in relation to Cedar Lake and Lake Winnipeg, acquired by levelling the rapids and measuring the currents in the river, would make its approximate elevation above the sea about 680 feet. It is reported to be deeper than Cedar Lake, and its banks on the east and west side are more abrupt and rocky, but its northern and southern shores are very low. Along the coast there are some fine groves of balsam-spruce and aspen, but the land back from the lake is very flat and poorly wooded, a great portion of the original forest having been destroyed by fire; large tracts of burnt and dead timber are seen here and there; the blackened trunks of poplar and spruce indicating the ridges or dry areas over which the conflagration extended, and the lifeless tamaracks revealing the swamps or flooded land. The lake extends so far to the north, its extremity in that direction is not seen from the traverse line, being below the horizon of the spectator. In the northern arm of the lake there are

several wooded islands, but as they were some distance from our track I was unable to ascertain the nature of their formation.

There being two rapids between Cross Lake and the Grand Rapid, the Saskatchewan may be said to descend by four distinct steps from Cedar Lake to Lake Winnipeg; the first one east of Cross Lake, having a length of about 10 chains with an estimated fall of  $2\frac{1}{2}$  feet, occurs half a mile below the re-commencement of the channel of the river, and appears to be attributable to a low and nearly level belt of limestone, through which the river has gradually excavated its way by three separate channels. The middle channel, by which we descended the rapid is only 3-4 chains wide, and could apparently be ascended by a steamer without difficulty, as it is deep and appears to be free from boulders. The other channels might even be more favourable for steam navigation, being broader as far as could be observed, and containing a greater volume of water; they are however a little out of the direct course, and for this reason are not followed by the boats. The smooth portions of the river are really broad here; the width above the two islands formed by these three channels being more than half a mile, and below them upwards of three-quarters of a mile. About a mile below the foot of the first rapid the second one begins. Its length by "dead-reckoning," is fully a mile, and its approximate fall is not more than  $7\frac{1}{2}$  feet. It is a long gradual slope with a deep channel of rolling, but comparatively unbroken water in the middle; the water is more turbulent at the sides, where the current is interrupted by points of limestone rock, boulders, and débris. The exposures of limestone on the points, are 4-6 feet in thickness above the water with a horizontal stratification. The loaded boats of the Hon. Hudson's Bay Company descend this rapid easily, and as they are generally "tracked" up with the whole of their lading, a lightened steamer, with powerful engines might surmount it by taking the best channels and other precautions.

It is about four miles from the foot of this last rapid to the beginning or summit of the Grand Rapid. In that distance the river is smooth and deep, but has a very swift current, especially where its bed is contracted. The width of the river in this interval is much diminished, varying from nine chains to a quarter of a mile, and the rate of current is from three to three and a half miles an hour. There are one or two large boulders in the bed of the river here, over and around which the water boils and bubbles like a caldron; and now and then shoals on the north side of the channel are indicated by the rippling water and ground-swell occasioned by the current in passing over them. The land between Cross Lake and the Grand Rapid is generally low and flat, but thickly timbered with balsam-spruce, poplar, tamarack, and birch. At the second rapid east of Cross Lake the banks on the north side of the river are eight or ten feet above the surface of the water, and are composed of a light coloured drift clay. These clay banks gradually increase in height towards the Grand Rapid, where they attain an elevation of upwards of 20 feet; but it is probable that the surface of the country is nearly level, and that it is the descent in the river which causes the apparent rise in its banks.

August 22nd.—This being Sunday, with a view to rest our wearied limbs, we did not proceed on our journey till after breakfast (about 8 a.m.)

However desirable it might have been, under other circumstances, to have remained inactive on this day; in the position in which we were placed, like a ship at sea, with a limited supply of provisions, and a long and hazardous voyage before us, it would have been altogether out of the question; indeed, the loss of a day or even an hour might have compromised the safety of the whole party.

In about an hour we reached the beginning or west end of the portage at the head of the Grand Rapid, whence my various instrumental observations and measurements in relation to the rapid began. In order to commence operations we disembarked and made the portage, which of course is never done by boats in descending the river. Yet, notwithstanding that boats invariably "run" the whole of the rapid it would be extremely perilous to descend the upper portion of it in a small heavily laden canoe without a guide.

So much having to be done with so few hands, our little party exhibited a scene of unusual activity and exertion, from the time we landed at the top of the rapid until we camped in the twilight on the coast of Lake Winnipeg. The first thing to be accomplished was the transportation of the canoe and the heavier articles of luggage to the east end of the portage; to effect this, the united energies of the party were required, and owing to the length of the portage it occupied some time. While Wigwam was carrying the remainder of the lading, I was engaged with Louis in making a survey of the portage and rapid, chaining across in one direction and levelling back in another, and so forth.

About 4 p.m. the various observations were completed, and everything had arrived at the east end of the portage. The different operations involved the crossing of the portage (more than a mile in length) many times during the day. While dinner was preparing I occupied myself in making a sketch of the cataract and examining the character of the perpendicular limestone cliffs at its side.

After eating a hasty meal we re-embarked to run the lower portion of the rapid.\* The voyageurs wished me to walk through the woods to the foot of the rapid, (probably to lighten the canoe,) but as the day was already far advanced, and being anxious to reach Lake Winnipeg, as well as for other reasons, I deemed it expedient to go down "in canoe."

In running the rapid we followed as closely as possible the instructions given to us by our old guide on the plains (John Spence), who had often piloted the old N. W. Co.'s *North* canoes down its entire length. In attempting, according to his directions, to cross from the north to the south side of the rapid, in order to get into what was reported to be the best channel for a small canoe, such was the fierceness of the current and the turbulence of the great surges and breakers in the middle that we were nearly engulfed; and although every nerve was strained we were swept down with impetuous velocity, and did not get near the other side till we were about three quarters of a mile below our starting point. We were then

\* The part here designated as the *lower portion*, although the Grand Rapid is one continuous torrent from beginning to end, is that below the east end of the portage, and is more than one mile and a half in length.



impelled with astonishing swiftness along the south side of the torrent, often in dangerous proximity to the rugged wall of rocks bounding the channel, and now and then whizzing past—almost grazing—sharp rocky points jutting out into the river, against which the thundering waters seethed and foamed in their fury. During the descent the voyageurs exerted themselves to the utmost of their strength, and evinced an admirable degree of coolness and dexterity.

The Grand Rapid is acknowledged by those who have witnessed it, and who have had opportunities of traversing the great river systems of the continent, to be unsurpassed (as a rapid) in magnificence and extent, as well as in volume of water. It is certainly a formidable barrier to the navigation of the Saskatchewan.

The following are the dimensions of some of the leading features of the Grand Rapid :—

1. *Its Length.*—The portage path is nearly straight, with a magnetic course, from the upper to the lower end, of S. 60° E.; it is 87 chains 40 links in length; the distance between its extremes by the river is a little more than this, as the river describes an arc of which the portage is the chord, but as the head of the rapid is a little below the west end of the portage, this distance may be adopted as the length of the upper or most precipitous portion of the rapid. The distance from the east end of the portage to the foot of the rapid by our track is 129 chains. This would make the whole length of the rapid 216 chains 40 links, or nearly 2 $\frac{3}{4}$  miles.

2. *Its Descent.*—By levelling carefully along the portage path, I ascertained the fall between the smooth water at the head of the rapid to the general level of the water at the east end of the portage to be 28·58 feet; and after observing instrumentally the descent in the lower portion of the rapid as far as the nature of the country would allow, I closed my levels on a bench mark at the surface of a pond of still water fed by an eddy at the lower end of the portage. The fall in the lower portion of the rapid, acquired by levelling and by careful estimation is about 15 feet; this would give about 43 $\frac{1}{2}$  feet as the total descent of the rapid.

3. *Its Breadth and Depth.*—The width of the river, at the upper end of the portage, is about 20 chains; at the head of the rapid, about seven chains further down, where there is an island in the bed of the river, it is about 30 chains; and at the lower end of the portage, where the rapid emerges from the highest limestone plateau, its width is about 10 chains. From thence it gradually widens towards the foot of the rapid, where it attains a width of 25 chains. I was unable to obtain soundings of the rapid, but from the depth and volume of water above and below it, where the river is much broader, it is undoubtedly deep.

The Grand Rapid, throughout almost its entire length, washes the bases of perpendicular escarpments of rock. It passes through two plateaux of brittle buff-coloured limestone, with a horizontal stratification; the top of the first, or upper plateau, being nearly on a level with the surface of the water at the head of the rapid, and underlying a stratum of light-coloured clay, 23 feet in thickness, in which are embedded boulders and pebbles of limestone; the whole overlaid by about eight inches of vegetable mould, and clothed by a forest of balsam-spruce, tamarack, and poplar. The surface of this plateau continues nearly level as far as the lower end of the portage, where the top of the rock is 25·36 feet above the surface of the water, and about the same height above the lower plateau. The lower plateau continues some distance further down, but is soon hidden by drift clay banks, which at the foot of the rapid have an altitude of 20–30 feet above the water.

It is not improbable that the Grand Rapid is the result of the eroding influence of the great body of water in the river, upon the rock through which it flows—the limestone being of a friable and yielding nature. At a remote period, the water of the Saskatchewan was perhaps lowered from the top of this rock formation, by a perpendicular cataract; the precipitous leap most probably began at the lower end of the portage, or at the eastern limit of the highest limestone plateau, from whence the river gradually wore away the rock, at the same time diminishing the height of the fall, until it became a foaming rapid from beginning to end.

The upper portion of the Grand Rapid—of which I succeeded in getting a sketch—presents a scene that strikes the beholder with wonder and admiration. The great body of water that has been stealing along, swiftly but silently, for many miles, appears to be suddenly imbued with life—the rippling of the river becoming gradually more turbulent, until the surges grow into huge, rolling billows, crested with foam, like waves in a tempestuous sea. The great rollers and breakers seem, to the spectator, to be continually changing in shape and appearance, on account of the lines of surf and the peculiar colour of the water; but although the mighty cataract thus appears to be for ever changing, it really rolls on for ever the same.

The ascent of the Grand Rapid is one of the most laborious duties that has to be performed on a boat voyage from Lake Winnipeg to the Saskatchewan district. The Hon. Hudson's Bay Company's brigades surmount this fearful interruption to the upward navigation of the Saskatchewan in the following way: On arriving at the foot of the rapid every boat discharges one-half of its cargo of four to five tons. Thus lightened, they are then "tracked" (towed) up to the beginning of the portage—the whole of the crew of six or eight voyageurs, with the exception of the bowsman and steersman who remain in the boat, being engaged in the labour of tracking. Each man is attached to the tracking-line by a leather belt, or portage strap, passing round his body; and harnessed in this manner they drag the boat along, running and scrambling barefooted over the slippery and jagged rocks at the sides of the cataract. When the lower end of the portage is reached, the boat is emptied, and "run" back again to the foot of the rapid, and from thence hauled up as before with the remainder of its load. The whole of the lading is then carried over the portage, exclusive of 15 pieces, or about 1,350 lbs., which is left in the boat. With this ballast, the boat is pulled across to the south side of the rapid, to be tracked up, as the towing-path is better there than on the north side. In consequence of the rapidity and violence with which the upper portion of the rapid flows, in ascending it, it is necessary to employ the "main line"—a much thicker and stronger rope than is generally used for tracking. To this line



the crews of one or two boats are lashed, and thus they run along the top of the cliffs of limestone,—there being no footing at the bottom of these walls of rock,—hauling the heavy craft up the surging cascades. The utmost strength of the bowsman with his pole, and the steersman with his long sweep oar, is required to prevent the boat from being dashed to pieces among the rocks.

Small brigades, feebly manned, often haul their boats over the portage. The portage road bears evidence of this, as it is deeply scored and furrowed by the keels of boats from beginning to end.

Although the Grand Rapid is the most serious obstacle that the Company's boats have to encounter, it is not the only difficulty they meet with on the Saskatchewan. The whole ascent of the river is one of labour and fatigue. The current is so swift—as the name of the river is well known to imply—that the voyageurs would track nearly all the way to the Rocky Mountains if the banks of the river would allow; but where the river passes through marshes and swamps they have no alternative but to pull against the current, however strong it may happen to be.

Before finally determining upon any works or measures for overcoming the Grand Rapid, in order to render the whole of the Saskatchewan navigable for steam vessels from Lake Winnipeg, without interruption, it would be necessary to make a more extensive and elaborate survey; but probably sufficient information and data have been acquired during this *reconnaissance* from which schemes might be devised, and suggestions offered, for surmounting the difficulty. To navigate the Saskatchewan at present, a steamer would evidently have either to be built above the rapid, hauled over the portage, or “warped” up the rapid itself. Seeing that the Company's large batteaux are hauled up the rapid by manual labour, it does not seem impracticable for an empty steamboat, with engines of great power, to ascend it by the aid of hawsers and guy-ropes stretched from the steamer to the land, using, along with capstans, the motive power of the steamer as far as available. But in any case, unless a canal were constructed, a transshipment of cargo bound upwards would have to take place, whether there were steamers plying above and below the rapid, or whether steamers were forced up the rapid; so that it would be necessary to construct a good road or tramway on the present line of portage. The features of the country in the vicinity of the Grand Rapid are very favourable for a road, and even for a settlement, as the banks of the river are high, with a considerable depth of good soil, from the second rapid east of Cross Lake to near Lake Winnipeg. There is also abundance of timber for fuel and building.

From the foot of the Grand Rapid, the Saskatchewan flows, with a pretty strong current, in a northerly direction till it enters Lake Winnipeg. Its mouth has a width of about 28 chains, and is a little over two miles below the lower end of the rapid. On the coast of Lake Winnipeg, immediately east of the mouth of the Saskatchewan, there are several deep and narrow bays, or estuaries, marshy at their inner extremities, and separated by narrow points or spits of gravel, by which it seems not improbable the Saskatchewan entered the lake at some period of its existence, and that north-easterly gales and shoves of ice have driven up these barriers, and caused the river to excavate new outlets.

We visited an Indian encampment on the north bank of the river, a little below the foot of the rapid, in the expectation of procuring some sturgeon, but were unsuccessful, the fishery carried on here by the Indians having failed this year. This encampment of two lodges was the only one we saw on the Main Saskatchewan. It had been a larger camp, but eight families had just left it, previous to our arrival, for their winter quarters at the Little Saskatchewan. They are Swampy Indians, and generally winter at Fairford, from whence they proceed in summer to the Grand Rapid; where, by assisting in dragging the boats and *portaging*, they get a small recompence in the shape of tea, tobacco, or pemican. They occupy the time between the arrivals of the different brigades of boats in catching and drying fish, and generally leave after the last fleet has passed up in the autumn.

Reaching Lake Winnipeg about sunset, we proceeded along the coast till it became too dark to continue observations, and camped for the night upon a narrow spit of gravel, separated from the wooded shores by a marsh.

August 23rd.—Proceeding on our journey this morning at 4:20 a.m., and being favoured with a light breeze for a few hours, we reached the neck of the great promontory, *Cape Kitchinashi*, about noon. From the mouth of the Saskatchewan to this point the coast trends to the south-east, and is indented in a remarkable manner by a series of deep bays of every shape and size. As it would require unlimited time and resources to penetrate into every sinuosity of the coast, we generally steered straight from point to point, although in doing so some long traverses had to be made.

The northern coast line of the promontory being nearly straight, with fine sand beaches, affording tolerably good footing, we tracked along the shore for the remainder of the day; although this was hard enough work, the men were glad to avail themselves of it, as a change or relief from paddling. By working 15 hours to day we were enabled to camp at the extreme point of the headland, where, the night being favourable, the magnetic variation of 15° E. was observed. The Ojibways call this cape “Kitchinashi,” and the Swampys “Missineo,” both names signifying “Big Point.” By some it is called “The Détour.”

August 24th.—A fine morning, the lake quite calm. After doubling the cape we overtook eight small canoes containing the band of Indians who left the Grand Rapid on Sunday, 22nd. In a short time a light breeze sprang up, and by hoisting a blanket we sailed at a pretty good rate for some hours. About 2 p.m. the wind began to increase in strength and turned suddenly against us, so that we had to run in behind a low point of sand and gravel for shelter. Although the wind still continued high, we started again and made a traverse to a small sand island, on which we were obliged to remain, being then over two miles from the main land, and the storm having increased in violence. A storm of wind soon raises a very heavy sea on Lake Winnipeg on account of its little depth of water.

The island on which we were detained is one of the Gull-egg group, which, with the point of sand protruding from the main land, form a pretty good harbour on the south side of the neck of the great promontory. The Indians were nearly destitute of provisions, and followed us to the island, where they fortunately got a plentiful supply of eggs and young gulls; but having little ammunition, they



brought down only a few old ones, although they hovered in countless numbers over the island, screaming at the wholesale destruction of their young brood.

August 25th.—The storm raged all night, and this morning we found ourselves surrounded by a foaming sea on a low island of sand about 100 yards in length, and so narrow that the spray from the breakers dashed completely over it. The gale blew hard from the east till about noon, when it began to subside; I then determined upon starting on our course, but seeing a thunderstorm approaching, decided upon taking dinner before making the attempt. It was well that we did so, because just as we were hastily swallowing our meal of pemican, the thunderstorm, accompanied by strong wind and heavy rain, burst upon us with great violence. Some of the Indians were endeavouring to reach the next island in the line of traverse, but had to abandon the attempt and drive before the gale to the main land, three miles off.

The storm soon abating again, we crossed to the next island and from thence to the main shore; and after coasting along for some miles encamped on a sandy point, where we found a small bluff of poplar and spruce.

August 26th.—Last night the northern lights, or aurora borealis, were unusually brilliant, darting and playing about with extraordinary rapidity in all directions, sometimes extending to the zenith and sometimes to the south of it. The voyageurs said they portended a coming storm, and their prognostications proved correct. The night was clear, with a bright moon till about midnight, when a cold north-westerly wind arose, followed in a very short time by a stormy sea. The gale soon veered round to the north, increasing to a perfect hurricane, and during the day the lake was white in all directions with breakers and foam. A heavy surf breaking along the coast and tearing away large portions of the bank on which we were camped, warned us to move our canoe and lading back from the shore; yet, notwithstanding every precaution, some of our paddles and poles were swept away during the night. A large marsh being in our rear, we could retire but a few yards from the raging lake to wait for the abatement of the storm.

August 27th.—After midnight the wind began to decrease gradually, and by daybreak it had so far subsided as to permit us to continue our voyage. By breakfasting at a point where we witnessed an outcrop of limestone, I was enabled to procure some fossils. This, the first rock exposure observed since leaving the Saskatchewan, is apparently the termination of a ridge running at right angles to the coast line, and bounded on either side by marsh and swamp. The top of the rock is 10 feet above the surface of the lake, and is covered by a stratum of boulders and drift two feet in thickness, supporting small poplar, tamarack, spruce, birch, and Banksian pine; there are only six feet of the limestone exhibited, the remaining four feet being concealed by a talus of boulders and débris. The high water-mark of the lake reaches to the top of the talus.

A contrary wind arising about noon detained us four hours at the mouth of a creek, which we ascended a short distance. The entrance, or where the creek cuts through the sand beach enclosing a marsh, is one chain wide; within the sand beach the creek expands into a deep pond 30 chains in diameter, surrounded by a marsh; this pond is fed by the inner portion of the creek, a broad and sluggish stream five feet deep meandering through a tamarack swamp. It is reported by the Indians to have its source a long distance inland. As there is but one and a half to two feet of water over the bar this could only be used as a harbour for boats. Its position is delineated on our map about half-way between the Gull islands and War Path River.

We set off again after the wind had moderated a little, but were compelled to camp in an hour and a half in the lee of a point, on the weather side of which an adverse wind was blowing hard, driving before it a heavy sea. Being thus repulsed by the wind, I directed my attention to the character of the coast in the vicinity of our bivouac. Along the shore there extends a long straight sand beach, 60 feet wide, and arched like a road-way; on the inner side of this beach there is a tamarack and black spruce swamp, with a bottom of black muck and moss two feet in thickness, covered with water. This "muskeg" is said to continue for a great distance back. By levelling I found the surface of the water in the swamp to be only eight inches higher than the lake; and as the crown of the sand-beach is only four and a half feet above the level of the water, and is covered with driftwood, it is evident that the lake washes into the marsh during high water.

Leaving camp at 4:30 a.m., August 28th, we reached the mouth of War Path River at 1 p.m. The Indians say this river rises in lakes, and, draining a great extent of swampy country, is very large in spring. There is three feet of water over the bar at its mouth; the channel at the entrance is contracted in summer by the sand to a width of 40 feet, with an average depth of four feet; within the entrance there is a basin 30 chains broad, forming a boat harbour of easy access.

An excellent opportunity was afforded to-day for testing the accuracy of the results obtained from observations made with the log-line, upon the correctness of which the detail or "filling in" between established points, by track or dead reckoning survey, in a great measure depends. By chaining three-fourths of a mile along the straight sand beach, near the mouth of War Path River, I was enabled to obtain the rate of the canoe very accurately; the mean of a series of observations registered by the log while making the test corresponding with the rate computed from the measured distance. The average velocity of our canoe in passing through still water in calm weather was ascertained, by timing it carefully over the standard, to be three and a half miles an hour.

After tracking all afternoon along straight sand beaches, which separate marshes from the lake, we camped nearly opposite Caribou Island, on a coast similar to that which we left in the morning. The Indians came up with us, and erected their lodges in our neighbourhood.

August 29th.—Embarking this morning at daylight, we reached Limestone Point about 11 o'clock, after making a traverse of three miles against a strong head wind. On this point there is a very fine exposure of light coloured limestone, containing numerous fossils, some of which I succeeded in procuring. The outcrop on the point is 14 feet in thickness above the lake, in massive horizontal layers, overlaid

by two and a half feet of drift and fragments of limestone that have evidently been broken up by ice. This headland is the abrupt termination of a narrow ridge of limestone closed with aspen, spruce, and birch; it is about two miles long, running nearly north and south. On the west side of it is Portage Bay, so called by the Indians, as they sometimes make a portage from the foot of it across the neck of the point.

After remaining here about two hours, we proceeded on our journey. On rounding the point we found the wind on the east side of it blowing directly in our teeth, and it required the utmost exertions for two hours to force the canoe against a high gale and stormy sea, until we got into the lee of a small island, it being impossible to land on the main shore. The canoe leaked and shipped so much water during this traverse, that, in order to lighten her, we were compelled to throw overboard some of the heavier of our geological specimens. It was with great regret I saw one of them, a very large and fine *orthoceratite*, consigned to the deep.

On the island we found part of the Indian band, but the greater portion were hurrying on to the Little Saskatchewan to get fish, as they had nothing to eat. We saw them in the distance, battling against the wind and sea, their little canoes like specks, tossing among the swells and breakers. The Indians remaining on the island were chiefly old men and young children, the more feeble of the party, and being ravenously hungry, they were all in the marshes busily engaged in pulling up and eating the roots of bulrushes. The storm increased towards evening, and we were obliged to camp on the island ourselves.

August 30th.—Although the unfavourable wind had diminished but little this morning, we plied our paddles so well, and made such good headway against it, that we entered the mouth of the Little Saskatchewan or Dauphin River about 11 a.m. We tracked up the river to the Indian encampment, about four miles from its mouth, for the purpose of procuring fish, and found the Indians at the rapids scooping large numbers of excellent white fish from the eddies.

As the west coast of Lake Winnipeg south of the Little Saskatchewan was examined, and will be described and reported upon by yourself, it will be unnecessary for me to do more than give a brief outline of my progress and operations in surveying the coast line from that river to the mouth of Red River, where I closed the survey. But before resuming the narrative of my proceedings, it would perhaps be as well to give a short recapitulation of the character and general topography of the west coast of the lake between the Main Saskatchewan and the Little Saskatchewan.

The distance from the mouth of the Main to the mouth of the Little Saskatchewan by our track along the coast, or by the course that canoes or row boats would be likely to pursue, is about 140 miles; but the distance by the coast line, embracing every sinuosity of the shore, is much greater.

The most prominent feature in the line of coast is the great headland, Cape Kitchinashi. This immense promontory begins to stretch out into the lake in a direction a few degrees north of east, about 15 miles south of the Saskatchewan. Its extreme point is about 24 miles in an air line from the general line of the coast, and its width varies from three to six miles and upwards; its neck is indented by several deep bays, some of which could be used as harbours or roadsteads. The formation of the cape is peculiar; it is very low and flat on the north side, while on its southern boundary the coast is comparatively high and abrupt. Its northern side consists of a series of marshes separated from the lake by a narrow sand beach; these marshes gradually blending into a tamarack and spruce swamp. Along the south side of the cape there is a continuous escarpment of light-coloured clay, 25–40 feet high, yet even on the top of these high banks the character of the land is of the poorest description, being nothing but a “muskeg” or mossy swamp, containing a thin growth of very scrubby tamarack and spruce, covered with drooping moss.

The extremity or apex of the promontory is a very low and broad sand beach, covered with water-worn boulders; the lake is also dotted with boulders a long way out from the shore, there being a sand-bar or continuation of the point under water, on which they rest. From the size and position of the cape, and the dangerous shoals extending out from it, if beacons or lighthouses are ever required on the lake for the safety and convenience of shipping, no more suitable place could be selected for the erection of one than here.

The coast north-west of the cape, as already stated, is very low, and much broken by deep and narrow bays.

From Cape Kitchinashi to the Little Saskatchewan the coast trends generally to the south-east. Between these points limestone is exposed in six places. The exposures are the precipitous extremities of ridges, forming points at intervals along the coast. The stratification in every instance is horizontal, but the escarpments vary in height above the lake; they increase in altitude from four to 14 feet towards the south. These ridges are generally wooded with aspen and other deciduous trees, and the swamps intervening are timbered with tamarack and spruce; some of the spruce near the coast are pretty large. Between the ridges low sand beaches extend along the coast. These beaches separate ponds and open marshes, averaging from a quarter to one mile wide, from the lake; in the rear of the marshes is the great tamarack and spruce swamp, or “muskeg.”

The tributary streams in this part of the coast are not numerous, and they are generally of no great size. The chief are the Gull Egg Rivers or the Two Rivers, the War Path River, Jumping River, and one or two others without name; they are not in themselves large, but their estuaries might be available as harbours for boats.

The character of the country exhibited on the coast extends almost an unlimited distance back; indeed the Indians report the whole of the country between Lake Winnipeg and Lake Winnipegosis as one vast “muskeg,” the great moose hunting grounds of the Swampys.

Although the country here described is quite unfit for agricultural purposes, it is not altogether valueless; there are large areas of good timber along the coast, available for fuel, and the limestone cropping out at the various points is well adapted for building.



Being without a guide, I got one of the Little Saskatchewan Indians to draw me a map of the lake between Bushkega Islands and Grassy Narrows, showing the traverses and route to be taken between the islands in order to cross the great arms of the lake, Fisher Bay and Washow Bay. This Indian chart was of great service to us; the best and most recent maps of the lake to which I had access being so incorrect: on them the general contour of the coast north of the Little Saskatchewan is tolerably well delineated, but to the coast north and south of the Dog's Head Straits they bear very little resemblance; the large islands are omitted altogether, and the Great Black Island is represented as forming the extremity of a promontory on the mainland between two bays.

From the beginning our canoe was very weak, the bark being of the poorest description and badly put together; and having now become quite frail, I tried to barter with one of the Indians for a new and stronger one; but, taking advantage of our situation, he placed upon it a much greater value than I felt inclined to give. Looking upon our canoe as worthless, he wanted in addition to it 2*l*. sterling, and one of my blankets. Considering this an unconscionable price, we determined upon venturing to perform the remainder of the journey with the battered canoe we had.

Having made sections of the river, and examined the country bordering the Little Saskatchewan, we left it on the 31st of August; but were detained the greater part of the day on a point only a few miles from the mouth of the river, by unfavourable wind and in consequence of the sickness of Louis, our steersman; who, being a pretty old man, was disabled from over exertion in the storm on Sunday.

On the 1st of September, while sailing with a side wind across the mouth of a deep bay, in which there was rather a heavy sea rolling, a large swell broke over us throwing in a great deal of water; the water got into the compass box, and even my watch in my waistcoat pocket, stopping it at once; and it was some time after effecting a landing and drying it out before I could get it to go again. Having to contend the remainder of the day with opposing winds, we were quite worn out when we camped about sunset.

From the evening of the 1st September until the morning of the 5th we were windbound on a low marshy point on the north-east side of the great bay into which the Little Saskatchewan empties. The spot on which we were imprisoned is very much circumscribed; being a narrow sand beach, about a chain in length, and bounded on three sides by an extensive marsh. During the three days that the storm lasted, the wind blew a hurricane from the N.N.W., raising a tremendous sea on the lake; and the surf beating along the shore, washed away several yards of the sand beach on which we were encamped. The weather was clear the first day, and I occupied myself in determining the correct time, and the variation of the compass. On the second and third days it rained almost incessantly, and it was then for the first time on our voyage that we really felt the privations of hunger; we had no flour from the time we left the main Saskatchewan, and our whole stock of provisions was now reduced to a few pounds of rather mouldy pemican, which I determined to eke out as long as possible, as we were still a great distance from Red River (upwards of 170 miles by the canoe route); and with that object in view we made it a rule to eat only one meal a day while we were windbound, unless we were fortunate enough to procure some additional food, in the shape of wild fowl or other animals. We succeeded in getting a gray gull on the second day, on which we made an excellent repast.

On the morning of the 5th, just before we started, an Indian and family from the Dog's Head came to us; they had been windbound seven days on an island not far from where we were; they said they never saw such a continuous succession of winds and storms on the lake before; and informed us that a freeman's boat which passed during the night had been 30 days between Red River and the Saskatchewan, a distance that has been accomplished by a boat, with a favourable wind in three days. After bartering with this Indian for a small *mokok* of fish pemican, (dried fish pounded and mixed with sturgeon oil,) we proceeded on our journey, glad to get away from the dreary spot. Although there was still a heavy retarding ground-swell on the lake, we paddled many miles before halting. On stopping to cook breakfast we were greatly disappointed to find that the fish pemican which I was so thankful to get, was nearly all rotten, there being only a small portion on the top that could be eaten, the remainder had to be thrown away.

A contrary wind freshened up again about noon, but we continued struggling against it, until in attempting to round a point we were completely driven back, and narrowly escaped foundering among the huge swells and breakers that dashed high over the boulders extending out from the beach; we saved the canoe by jumping into the surf and throwing the lading rapidly ashore. As soon as we got everything out of the reach of the waves that were dashing their spray over the dripping shingle beach into the swamp behind, I sent Wigwam off into the marshes to try to procure us some food. Not making his appearance at night-fall, I despatched Louis in search of him; they both returned very late, having wandered many miles along the coast, but brought nothing with them. Louis attributed Wigwam's want of success to the fact of his hunting on Sunday. While they were gone I gathered some green cranberries in the marsh, and with them and a little pemican I made a kind of soup of which we partook and lay down to rest.

Embarking at daylight on the 6th we reached the Cat Head at 2 p.m., after a hard paddle against an adverse wind and rough sea. On the boat voyage upon which I subsequently accompanied you we passed this bold headland in the night. I may, therefore, give a description of its leading features. It consists of a perpendicular escarpment of buff-coloured limestone in massive horizontal layers, the top strata overhanging the base; the summit of the rock is 30 to 35 feet above the lake, and is covered with drift and boulders to the depth of three feet, on which grow scrubby poplar, spruce, and tamarack. The water is quite deep up to the foot of the cliff, and as no landing can therefore be effected, I was unable to make a minute examination of the rock. There is a series of low, arched caverns in the base of the cliff in which the waves and swells washing to and fro make a singular hollow noise, and for this reason the Indians think it is the abode of a *manitou*.

Some of the Swampys say Cat Head is so named because an Indian hunter was killed there by falling over the precipice while chasing a wild-cat or lynx. The profile of the upper, or over-hanging portion of the cliff, bears a singular resemblance to the "cat-head" of a ship.

The wind becoming more foul we were compelled to camp on a point about a mile and a half south-east of the Cat Head, at the extremity of the north-western side of Kinwow (Long) Bay.

During the next day (7th September) the wind blew hard from the east, and the waves on the lake rolled mountains high, so that we could not venture out, having a long traverse before us. The narrow point or peninsula upon which we were detained is of a peculiar character, consisting of a straight barrier or ridge of boulders about three-quarter miles long, running at right angles to the coast, and connecting it with a small area or island of limestone a few feet high; this barrier resembles very much a railway embankment, or a rip rap breakwater; although it is 20 to 25 feet high, the waves wash over it during the great storms on the lake in the fall of the year.

The morning of the 8th dawned, but there still seemed to be little chance of our getting off, and our prospects now began to look cheerless enough; we had but a handful of pemican and one charge of ammunition left; while deliberating whether to eat the last remnant of our food, a bald-headed eagle came wheeling in great circles over us; he poised himself for an instant as if about to descend upon his prey, when he was fortunately brought down with our last charge of shot. He proved to be a large bird with magnificent plumage; a Cree or Blackfoot would have given a good horse for his wings or tail. By eating nearly every portion of the animal, except his feathers, we managed to make him serve for two or three meals.

The wind moderated sufficiently at last to permit us to resume our journey, but we had a fatiguing paddle for two hours in crossing Kinwow Bay. The extremity of this long arm of the lake was below our horizon, and the wind came sweeping out of it in great squalls. The wind veered round to the east and stopped us again about noon at the Wicked Point, where we spent the afternoon in drying our clothes and blankets, and gathering sand cherries, on which we supped.

10th September.—The wind fell and allowed us to reach Pike Head yesterday morning. We at once ascended the Pike or Jack Fish River to the "basket" or weir erected across it by the Indians, about half a mile from its mouth; for the purpose of procuring fish. The basket was much broken, and when we arrived was covered with turkey buzzards waiting to pounce on any fish that might get entangled in its meshes. By repairing the basket and watching it all night we caught an abundance of fish of four species, viz.: gold-eyes, wall-eyed pike, suckers, and pike. It rained without intermission during the day, and as the wind continued unfavourable we remained at the basket gutting fish to take with us.

We generally boiled our fish, making use of the liquor in which they were cooked as a substitute for tea; and having succeeded in capturing a small badger by pouring water into his burrow, we got sufficient fat or oil to enable us to have fried fish occasionally.

The average width of the Pike River is about a chain, and its depth about five feet, with a moderate current; its banks, half a mile from its mouth, are of light-coloured clay five to ten feet high, and covered with a rich dark mould supporting a thick growth of aspen, spruce, tamarack, birch, and balsam. Near the basket there is an old log house, formerly a missionary station, but now abandoned. When the Indians come to fish here they cut up the flooring and timber of this house for fuel instead of availing themselves of its shelter.

11th September.—Having stowed away as many fish as we could find room for in the canoe, we left the Jack Fish River in the morning, and being favoured with a fair wind sailed without stopping till dark, when we camped on a small island in the entrance to Fisher Bay. On Sunday, the 12th, we had to encounter a brisk contrary wind from the south; but, by working 16 hours against it and making some wide traverses between the islands, we succeeded in reaching the point opposite Dog's Head, at the beginning of the narrows, before night set in.

No opportunity being afforded you for exploring the east coast of the lake while passing through the straits or narrows about 10 days after this, I may give some of its characteristics at those points where we landed to examine it. The east coast, from the Dog's Head to where we left it to cross to Grindstone Point, consists of a succession of knolls or low domes of granite and gneiss rising generally eight to ten feet above the water, and clothed on their flanks with a scrubby growth of timber, chiefly Banksian pine, spruce, and a few aspen; there are, generally, ponds and swamps between the granite knolls, and the coast line is much broken by deep inlets and small well sheltered bays, forming excellent harbours and coves for boats. The east coast, north and south of the straits, is described as being similar to this; abounding in harbours, and for this reason it is the route by which boats invariably go to York Factory, and generally to the Saskatchewan. Opposite the mouth of Great Washow (Deep) Bay there is an inlet or passage called Loon's Straits, formerly a canoe route of the old North West Company.

By starting at daylight and sailing along the east coast of the lake on the 13th, we got in sight of the Grindstone Point about 2 p.m., when we set out on a longer and more dangerous traverse than any we had yet accomplished. We had to cross from the east coast of the lake to the Grindstone Point on the west coast, a distance of about 12 miles. From the shape of the lake, with its many deep and broad bays this great traverse is unavoidable. When we started from the east side of the lake, the high escarpment of rock forming the point seemed quite low and blue in the distance. By spreading a blanket we were assisted for a while by a side wind; but the wind soon changed and freshened up, so that we had to lower sail and ply our paddles with all our strength until reaching the point nearly four hours from the time we left the east shore. Taking advantage of a little moonlight, which enabled us to coast along a straight shore after dark, we did not stop to camp till arriving at the Little Grindstone Point.



By making an early start on the 14th, and creeping along in the shelter of the land, we were enabled to dine at Grassy Narrows. Although the flavour of our fish had not improved since leaving Pike River, we had always keen appetites, and were now by no means fastidious. Sailing from Grassy Narrows across a bay into which White Mud River empties, we arrived at the Sandy Bar a little after dark and camped.

15th September.—The wind and weather being favourable to-day, by working  $15\frac{1}{2}$  hours we reached the marsh near the mouth of Red River about dark. We found an Indian encamped on the sand beach hunting the ducks which are in countless numbers in these marshes at this season. He had killed 100 "stock" ducks during the day, and generously gave us a liberal supply; had it not been for this hospitable Indian we should have been badly off, as we ate our last fish at the Sandy Bar in the morning.

16th September.—Reaching the Stone Fort about dark, and procuring a horse there, I was enabled to join you in the Red River Settlement at 11 p.m., after a canoe voyage of 48 days in all; nine of which were occupied in descending from the Elbow of the South Branch of the Saskatchewan to Fort à la Corne, 14 from thence to the mouth of the Saskatchewan, and 25 days in traversing Lake Winnipeg.

The whole distance travelled and explored in canoe is over 940 miles, 600 of which being down the Saskatchewan and 340 miles open lake navigation. In performing this latter part of the journey with a little frail canoe, heavily laden, we were completely windbound for 12 days, and had to contend nearly all the time we were moving with boisterous head winds, foul weather, and a hand to mouth sustenance, frequently without food. This will, in some measure, account for the slow rate of progress we unwillingly made through Lake Winnipeg. I should much regret were it to be supposed that the tardy progress of this expedition was at all owing to the inefficiency of the two men—Wigwam Cullin and James Louis—you were pleased to appoint to accompany me; and must take this opportunity of bearing testimony to their unwearied labour, patient endurance, and unflinching devotion under a series of trying circumstances. Their conduct while they were my companions, for nearly two months, was beyond all praise; and they sustained privations, hardships, and risks of no ordinary description without a murmur.

To H. Y. Hind, Esq.,  
In charge of the Assiniboine and Saskatchewan Exploring Expedition.

I am, &c.  
(Signed) JOHN FLEMING.

## CHAPTER VIII.

### RED RIVER SETTLEMENT TO THE MOUTH OF THE LITTLE SASKATCHEWAN, IN A FREIGHTER'S BOAT.

Mouth of Red River—Aurora—Weather Signs—Channel at Mouth of Red River—Storm—Character of the South Coast of Lake Winnipeg—New Land—West Coast—Confervæ—The Willow Islands—Clay Cliffs—Good Land—Drunken River—Aurora—Rock Exposure—Deer Island—Section on—Equivalent of the Chazy formation—Fishing Ground—Miskena—Grindstone Point—Rev. Mr. Brooking—Rocks of Grindstone Point—The Little Grindstone Point—East Coast of Lake Winnipeg—Punk Island—Yellow Ochre—Coast near Dog's Head—Limestone Cave Point—Fissured Rocks—Jack Fish River—Fisher Bay—The Cat Head—Little Saskatchewan Bay—East Coast of Lake Winnipeg—Dimensions of Lake Winnipeg.

A fortnight was occupied at the Settlement in writing reports and making preparations for a voyage through Lake Winnipeg, the Little Saskatchewan River, and Lake Manitobah to the Salt Region, on the shores of Winnipegosis Lake. Mr. Dickinson prepared for an exploration of the country between the Lake of the Woods and Red River, and between the Assiniboine and the 49th parallel. Both parties were ready by the 18th, and at noon started on their respective routes.

Mr. Fleming and I, taking advantage of a fair wind, reached a point about seven miles below the Indian Settlement, where we camped. On the following morning the temperature of the air at sunrise was  $63^{\circ}$ , of the river  $59^{\circ}$ . We reached the mouth of river at 10 a.m., and hastened to avail ourselves of a south-east wind just beginning to rise. Last night the aurora was very beautiful, and extended far beyond the zenith, leading the voyageurs to predict a windy day. The notion prevails with them that when the aurora is low the following day will be calm; when high, stormy. The temperature of the mouth of the river was  $59^{\circ}$ , and of the open lake,  $1\frac{1}{2}$  mile from shore,  $58\frac{1}{2}^{\circ}$ . Rain commenced as soon as we were fairly in the lake, the wind suddenly chopped round to the north, driving a dense fog before it, and in a few minutes enveloped us in a misty shower. The steersman instantly turned about and made for the mouth of the river, there being no harbour nearer than the Willow Islands, at least 15 miles distant. The breeze rapidly increased to a gale as we regained calm water inside the bar at the mouth of Red River.

The wind subsided about 2 p.m., and a shot heard in a direction due south induced some of the voyageurs to exclaim that the wind would soon come from that direction, according to an impression common among these excellent observers and interpreters of "signs" that a shot heard against the wind is a good omen. But our steersman placed more faith in the aurora, and thought we had not "taken all the wind out of it yet." The sky having a threatening appearance, we determined to camp.

There are four mouths to Red River, and the channel we had entered was the main outlet; the breadth of the channel varies from 20 to 28 feet, and on either side shelves rapidly from four to eighteen feet of water. At 3 p.m., when just on the point of starting, one of the voyageurs suggested

that we should wait for a few minutes longer as he had observed the water of the lake coming in at the mouth of the river, and thought that the wind would soon blow strong from the north, although at the time the sky was clear and a calm prevailed. In less than half an hour a fresh northerly breeze sprang up, scud appeared drifting before it, and the waters of the lake flowed rapidly up the river into the vast marshes which extend for many miles inland at the southern extremity of Lake Winnipeg. The weather at this season of the year is very changeable, and renders boat navigation of this lake rather hazardous. In anticipation of a storm, we made ourselves as comfortable as circumstances would permit on a low spit of sand, with the lake before us, the river on our left hand, and interminable marshes east and south of us.

Sept. 20th.—Soon after sunset last night the breeze from the north rose into a gale; the water of the lake ran like a rapid up the river channel into the swamps, and a terrific swell soon set in from the lake, breaking upon the sandy beach with a stunning noise. The water rose to within six inches of the level of the spit on which our tent was pitched and threatened every instant to submerge it. At 10 p.m., the gale was at its height, and as we sat upon a stranded trunk of a tree, looking out upon the lake, a truly magnificent scene lay before us. Huge crested breakers covered the lake as far as we could see through the gloom, lighting up the coast with long glistening streaks of white foam. The noise was so overpowering that we had great difficulty in hearing one another speak; the waves broke over the narrow spit which formed the low bank of the river where our boat was moored and the tent pitched; our camp ground was reduced to a strip of sand eight yards broad and seven inches above the river on one side, with overflowing swamps on the other; if the storm had continued half an hour longer we should have been compelled to take to the boat and drift into the reeds, at the risk of being stranded when the gale subsided and the water retired from the marshes into the lake.

For many miles the south coast of Lake Winnipeg consists of alternate strips of sand sustaining willows, with marshes in the rear running parallel to the coast line. Some of these sand strips show many years of duration when well protected by drift timber, others are of recent origin, clear and bare, enclosing ponds in which rushes are only just beginning to show themselves. They are the records of the progress made by new land in its invasion of the lake at and near the mouth of Red River. A northerly gale throws up a bar or beach about 100 yards from the main shore. On the new beach drifted timber accumulates, and in process of time becomes consolidated by the gravel and sand which is washed between the logs. Willows soon grow on the new soil thus formed, and bind the whole into a firm beach with a marsh in the rear. A heavy gale may sweep the new land away or throw up another beach about 100 yards in advance of it, on which the process of consolidation is renewed. For ages past this work of construction and destruction has been greatly in favour of the former. Hence it arises that, with the exception of the newly formed spit at the mouth of the river, there is no accessible camping ground for several miles up the stream; marshes surrounding the spits or old beaches on which the willows grow, and extending in all directions as far as the eye can reach.

We employed ourselves during our detention in examining the coast, sounding the river, and in shooting and fishing. Our sporting brought us only six duck, three plover, and three large pike. The flesh of the pike was of a delicate salmon colour, more like that of the salmon-trout of the Canadian lakes than of the common pike.

Sept. 21.—We rose at 4 a.m., and in half an hour were *en route*, the morning just beginning to dawn: temperature of the air at sunrise, 51°, of lake 59°. The west coast for a few miles is elevated from five to six feet above the lake, here and there a low beach of limestone gravel, sand, and a few granite boulders, is fringed with a belt of tall aspens which grow within 20 feet of the water's edge. Behind the belt of aspen is a marsh, then another belt of aspens followed by a marsh. This succession continues for a distance of about three miles before good land supporting heavy aspens is to be found in large areas. Near to the spot where we breakfasted an excellent illustration of the prevailing character of the west coast thus far occurs. A sandy beach covered with shingle had separated a former bay from the main body of the lake. On this beach, which was not 20 feet broad, or more than five above the lake level, willows, dogwood, and grasses were growing; a large pond lay inside, fringed with rushes; it was tenanted by hosts of duck. In the rear of this pond a narrow strip of land, clothed with aspen, separated a marsh from it, which had doubtless once been a bay of the lake, then a pond, and finally a marsh.

At 11 a.m. a vast quantity of *confervæ* appeared in clusters on the surface of the lake, resembling in every particular a similar organism noticed in extraordinary profusion on the Lake of the Woods in August 1857. The sudden appearance of this "weed" indicated a calm, according to the experience of our voyageurs. A calm did occur for a short time, soon, however, followed by rain in the north, which fortunately did not reach us. Inland ponds cut off from the lake by low beaches appear as far as the Willow Islands, where we arrived in the afternoon; they were found to consist of a few small sandy areas and one long narrow strip of sand and gravel, stretching into the lake in an easterly direction, and separated from the shore by a narrow channel. The Islands are fast wearing away, and in the memory of some of the voyageurs, were covered ten years since with willows, poplar, and a few spruce. They have probably afforded much of the material for the formation of the beaches which have cut off portions of the lake on the south-west coast, the materials being drifted along the shore by the long waves which every breeze from the north, or a northerly direction creates. The depth of water near the coast is very small; soundings showed 29 feet water one mile north of Willow Island, the deepest part yet observed.

In the afternoon I landed to examine some cliffs of clay which appear about 23 miles from the mouth of the river. They were 16 feet in altitude, and exposed a clean surface of stratified marl, reposing on a brownish black clay. The stratification was in thin horizontal layers, easily detached one from the other. The brownish black clay showed a very tenacious character, so much so that it was very difficult to break off with the hand masses larger than 10 or 12 cubic inches in any other



direction than that of the plane of stratification. It was worn by the action of the waves into a great variety of forms, and on the beach lay large numbers of rounded, oval, spheroidal or circular forms, from one foot in length and three inches in diameter to small spherical bodies of the size of peas. They were covered with minute pebbles or with sand, and when broken showed a nucleus of the tough clay which had assumed its regular form by constant rolling on the beach. No organic remains were found, but the impression conveyed by the aspect of the clay and the marl by which it was capped satisfied me that it was of the same age as the clay and marly substratum of the Red River and Assiniboine Prairies.

The timber in the forest consisted of aspens and birch, with a few oak, elm, and ash. Our steersman, who knew the country well, informed me that good land, on which large timber grew, did not extend more than one mile from the lake. It is succeeded by spruce and tamarac marshes, the trees being of dwarfish dimensions. The afternoon was calm and warm, so far verifying the predictions of our voyageurs, which they had based on the sudden appearance of the "weed" in the morning.

Sept. 22nd.—Last night was cold, calm, and beautiful, the thermometer fell to  $36^{\circ}$  at 10 p.m., and to the freezing point before daybreak; Donati's comet shone a fine celestial object, and with a moon nearly full, and a splendid aurora distinctly visible notwithstanding the brightness of the moon, the heavens presented a very beautiful spectacle. We camped near the mouth of Drunken River, a small stream which would make an excellent boat harbour if widened at its outlet. The clay cliffs and marl disappeared before we arrived at our camping place; the shore again consists of a beach, with a swamp or marsh, fringed with small spruce and tamarac in the rear. I aroused the men at 4 a.m. The aurora at that hour was a splendid object, and appeared in the form of sudden flashes of low arcs of light, complete from east to west, rising in vast waves from one constant luminous base, a few degrees above the horizon. The vast waves of pale light followed one another with great rapidity and regularity for many minutes together.

A strong westerly breeze early this morning soon enabled us to reach the Sandy Bars, 14 miles from Drunken River, and then the Grassy Narrows, a distance of seven miles. Both of these points are low, sandy, and gravelly peninsulas, stretching out into the lake opposite to Big Black Island. The first exposure of limestone was seen on a small island opposite Big Black Island, which we named Guano Island. It dipped very slightly to the south-west. A search for fossils was fruitless; but on Big Black Island, and those adjacent to it, near the Little Grindstone Point, limestone appears in the form of low mural cliffs on the west shores, which were alone seen. This limestone is a continuation of a fine exposure afterwards found on Deer Island, where we arrived at 1 p.m.

The following section occurs on Deer Island.

Lake level.

Shingle beach (limestone).

No. 1. Four feet of dark-green argillo-arenaceous shale, with thin layers of sandstone of uneven thickness. Fucoids very abundant in the sandstone. The weathered sandstone is reddish brown; fresh surfaces are white or gray. White iron pyrites, assimilating the forms of disks, spheroids, and shells, occurs in the sandstone.

No. 2. In many respects like the former; the sandstone layers are from one to four inches in thickness, and predominate over the shaly portions. Its thickness is six feet. The character of these formations (1 and 2) is very variable; the green argillaceous portion sometimes predominates, and occasionally the sandstone.

No. 3. Ten feet of sandstone, with green bands of a soft argillaceous rock, from one quarter to four inches in thickness. The sandstone often white, but generally red. A persistent green band, a few inches thick, filled with obscure forms resembling fucoids, is very characteristic. The red-coloured sandstone is often soft and friable, the white frequently embodied in the red. Both red and white contain obscure organic forms. The green patches which are found throughout the sandstone contain impressions of fucoids. An *Orthoceratite* was found in the sandstone. In some parts of the exposure on Deer Island the sandstone layers are much harder, although partaking of the characters already described. When thus hard the white portion is extremely brilliant, of a pure white, and very silicious. It would form an excellent material for the manufacture of glass. Forms coloured brown often pervade the white sandstone, and appear to resemble fucoids and corals, replaced by brown ochreous sand.

No. 4. Eighteen feet of limestone, perfectly horizontal, very hard, and breaking off the cliff where the soft sandstone has been weathered away in huge rhomboidal slabs, eight to twenty-five feet in diameter and four to ten inches thick.

The surface of the limestone shows silicified shells and corals. Among the shells an *Orthoceras* nine inches in diameter was seen, with fossils belonging to the genera *Rhynchonella* and *Tetradium*. This formation is equivalent to the *Chazy* of New York and Canada, and consequently lies near the base of the Lower Silurian system.

In the shingle immediately below the cliff many fine *Orthoceratites* were found, with a large *Maclurea* and *Catenipora escharoides*.\*

Limestone appears for some miles on the west coast, south of Big Grindstone Point where we arrived in the evening. This part of Lake Winnipeg is very beautiful, resembling, in many pleasing particulars, the scenery on Lake Simcoe towards the Narrows, with wooded islands rising from the lake in clusters and rows. Between Grindstone Point and Deer Island the lead showed 60 feet of water. It is the great fishing-ground of some of the bands of Indians, who make this part of the lake their wintering place. White fish are very abundant, and caught by the Indians in large numbers;

\* For an enumeration of the fossils from this and other localities, in the region about Lake Winnipeg, Manitobah, &c., the reader is referred to the chapter by E. Billings, Esq., Palæontologist to the Canadian Geological Survey.

their flavour is not so fine as those of Lake Manitobah or of the Qu'Appelle Lakes. Sturgeon are also numerous, and, according to the belief of the miserable natives who fish here during the winter, the deep part of the lake is their great place of resort at that period of the year, where they lie with *Mis-ke-na*, the chief of the fishes, in the southern portion of Lake Winnipeg.

Longfellow alludes to the same superstition held by Lake Superior Indians, in the song of "Hiawatha," where he makes his hero go—

"Forth upon the Getche Gumees,  
On the Shining Big-Sea-Water,  
With his fishing-line of cedar—  
Of the twisted bark of cedar—  
Forth to catch the sturgeon Nahma,  
Nishe-Nahma, King of Fishes,  
In his birch canoe exulting ;  
All alone went Hiawatha."

We approached Grindstone Point after dark, and observed a camp-fire on the beach, with a freighter's boat close in shore. It belonged to the Rev. Mr. Brooking and his family, who were returning to Rossville from Red River. Mr. Brooking is a Wesleyan missionary, for some years a resident in Rupert's Land, and engaged in the unthankful labour of attempting to christianize the Indians. He had travelled from the head of Lake Winnipeg to Red River Settlement, to obtain medical advice for Mrs. Brooking, who was very unwell. Our interview was short—the voyageurs in Mr. Brooking's boat being anxious to take advantage of a fair wind which had just arisen. As soon as supper was ended they embarked, and proceeded by moonlight on their lonely journey. He was 20 days in coming from Norway House to Red River, having been kept back by contrary winds. His prospects of traversing the lake rapidly were now more favourable, as the south wind which prevailed would soon drive a freighter's boat to Norway House.

September 23rd.—The rocks at Grindstone Point, about six miles north of Deer Island, are similar to those already described in the previous section. Being further north the exposure is higher, and the sandstone bands more fully shown. Beneath No. 1 of Deer Island, a hard, yellow, compact sandstone appears, and is exposed for a space of four feet above the level of the water. Strata No. 1 and No. 2 of Deer Island appear in a slightly different form here: the sandstone bands are thicker; the green shaly portion more distinct as a separate band, and two feet thick; while above the hard yellow sandstone, the base of No. 1 appears in the form of a purple band of very soft sandstone, about one foot in thickness, containing a vast number of *stains*, which seem to have been occasioned by fucoids.

At Little Grindstone Point, the limestone No. 4 of Deer Island comes to the water's edge. The sandstone No. 3 is just below its level. Little Grindstone Point is a little more than seven miles south-west of Big Grindstone Point, and the altitude of the limestone, where it touches the sandstone at the last-named place, is about 25 feet, which would give an inclination of a sectional exposure in a south-westerly direction of about three feet in the mile. It appeared, however, to have a slight westerly dip, showing the true dip to be a few degrees more to the west than south-west, as was afterwards ascertained. In the limestone, turbinated shells are numerous, with *Orthoceras* of large dimensions. The scenery is attractive, and, in a geological point of view, eminently interesting. The opposite coast is formed of the unfossiliferous rocks belonging to the great Laurentian formation, which extends from Labrador to the Arctic Ocean. Within three miles of Grindstone Point, islands of this important formation occur a short distance in advance of the east coast, which is wholly composed of it.

The depth of Lake Winnipeg immediately opposite Grindstone Point is 48 feet. A storm afforded us another opportunity of examining the fossiliferous rocks of this locality, for no sooner had we started in the direction of the "Granite Islands," opposite the point, than the wind turned round to the north, and compelled us to seek shelter in a bay of Punk Island, three miles south-east of the Grindstone Point.

On Punk Island, strata 1, 2, 3, and 4 of Deer Island were recognized in a bay, with some lithological differences. In Nos. 1 and 2 here, which could scarcely be distinguished from one another, a great number of a *Modiolopsis*\* were found.

On the north-east side of Punk Island, above the purple sandstone mentioned as occurring at Big Grindstone Point, a thin stratum of buff-coloured limestone occurs, possessing some peculiarities. On raising slabs, between each stratum a soft and very pure ochre of a beautiful yellow colour is found, from one-eighth to half an inch in thickness. The ochre when moist and fresh is easily worked by the fingers, quite destitute of gritty or hard particles, of a uniform pale yellow, and when burned, of a beautiful cinnabar red. It is used by the Indians in both states as a pigment; the limestone in which it occurs is extremely porous and often honeycombed.

Sept. 24th.—At half-past 2 a.m., the wind being fair, and the sky clear, we prepared to start. There was a sharp frost during the night, and the thermometer registered 28°. We made the traverse of Great Washow Bay, 13 miles across, and breakfasted at a point half-way between Bull's Head and Dog's Head. The limestone cliffs here were about 30 feet high, and occupy the coast from Bull's Head to Whiteway's Post, opposite the Dog's Head. Where seen at breakfast, the coast is fringed with broken masses, which lie piled one on the other in picturesque confusion. Ascending the cliff, I found large portions detached from the main body, forming deep clefts or cracks. Some of these fissures were 12 feet wide and 20 feet deep, others three feet wide and of greater depth. Sometimes the fissures were roofed with masses which had slipped forward, forming long, narrow caves, lined with moss. One cave was more than 60 feet long, and with the exception of a small aperture, closed at one end and roofed throughout. We named the spot Limestone Cave Point. From the description given by one

\* See chapter by E. Billings, Esq.



of the voyageurs who had wintered near this place and knew the country well, the rock along the coast, from the Bull's Head to Pike Head, is fissured in the manner described. Very roomy walled caverns can be found, which are easily converted into excellent wintering houses for trappers. The sides of the fissures are perpendicular, and the fracture is so even as to form chambers of a rhomboidal shape. The passages between them are beautifully covered with moss, while gracefully drooping overhead the birch and white spruce obstruct the rays of the sun, giving to these lonely cells a gloomy and desolate aspect. The limestone is similar to that which has already been described as No. 4 of Deer Island. At the Narrows, or Dog's Head, the limestone and unfossiliferous rocks are in close proximity. The east side of the strait being composed of the Laurentian formation, on the west side of lower Silurian limestone.

The wind being favourable, we sailed during the whole day, and at 4 p.m. reached the mouth of Jack Fish River, making a traverse across Fisher Bay, a very deep indentation, whose western limit could not be seen from the canoe. In Fisher Bay islands are numerous, and some of them of large area, such as Great Moose Island, in the mouth of the bay, and Juniper Island, four miles to the north. Due west of the Dog's Head, Black Bear Island contains an excellent boat harbour, a feature worthy of note, as it occurs near the beginning of the great traverse across Fisher Bay. Jack Fish River issues from a marsh separated from the lake by a belt of sand and shingle about 100 yards broad. The river runs in a westerly direction from a series of small lakes and swamps, through a level, low country, abounding in fine spruce and tamarac forests, broken by gravelly ridges supporting poplar and birch. The breadth of the river at its mouth is 30 feet, but where it passes through the swamp it is broad and deep, and so continues for some distance into the country. Jack Fish River is a favourite fishing station of a tribe of Ojibways, and was once the seat of a missionary establishment.

It will be mentioned in another chapter that this tribe were deterred during the winter of 1858 from wintering here, by a threat from a noted conjuror of the Grand Rapid, illustrating the abject position in which superstition frequently places these unfortunate people.

Leaving Jack Fish River, or the Pike Head, as it is also termed, from a promontory bearing that name near to the mouth of the stream, we coasted under sail past Wicked Point across the traverse of Kinwow Bay, rounded Macbeth Point, and camped at Point Turnagain, beyond the Cat Head. The coast at the Cat Head is very precipitous; the limestone cliffs rise about 35 feet from the water, without any intervening beach, so that boats cannot land, and must necessarily push on until a narrow beach is found a few miles beyond it. Limestone cliffs, similar in all respects to those of the Cave Point, occupy the coast at intervals as far as the Cat Head, and probably fringe the Mantagao-seebe Bay, as they are seen near the mouth of the Little Saskatchewan, and on the north point of the great bay which derives its name from that river. Taking advantage of a fair wind and fine night, we carried on across Lynx Bay, and camped at half-past 11 p.m.

At half-past 4 on the following morning a westerly wind enabled us to round Point Turnagain, pass Bushkega and the Sturgeon Islands, and make the traverse across the Little Saskatchewan Bay to the mouth of the river. In making the traverse we could not see the extremity of this deep indentation in a south-easterly direction, where the Mantagao-seebe debouches. The greater portion of the bay was coasted by Mr. Fleming during his voyage from the Grand Rapid to the mouth of Red River. The temperature of the Little Saskatchewan was found to be  $52\frac{1}{2}^{\circ}$ , of Lake Winnipeg, one degree higher.

The description of the west coast of Lake Winnipeg, from the mouth of the Little Saskatchewan to the Great Saskatchewan, is given in Mr. Fleming's narrative, pp. 88-90. In order to complete a description of the entire coast line of this lake, I append the following extract from Sir John Richardson's *Journal of a Boat Voyage through Rupert's Land and the Arctic Sea*. The south-eastern coast of Lake Winnipeg, from the mouth of the Winnipeg to Red River, was described in my Report for 1857, page 251:—

“ The eastern coast-line of lake Winnipeg is, in general, swampy, with granite knolls rising through the soil, but not to such a height as to render the scenery hilly. The pine-forest skirts the shore at the distance of two or three miles, covering gently rising lands, and the breadth of continuous lake surface seems to be in process of diminution, in the following way. A bank of sand is first drifted up in the line of a chain of rocks which may happen to lie across the mouth of an inlet or deep bay. Carices, balsam-poplars, and willows speedily take root therein, and the basin which lies behind, cut off from the parent lake, is gradually converted into a marsh by the luxuriant growth of aquatic plants. The sweet gale next appears on its borders, and drift-wood, much of it rotten and comminuted, is thrown up on the exterior bank, together with some roots and stems of larger trees. The first spring storm covers these with sand, and, in a few weeks, the vigorous vegetation of a short but active summer binds the whole together by a network of the roots of bents and willows. Quantities of drift-sand pass before the high winds into the swamp behind, and, weighing down the flags and willow branches, prepare a fit soil for succeeding crops. During the winter of this climate all remains fixed as the summer left it, and as the next season is far advanced before the bank thaws, little of it washes back into the water, but, on the contrary, every gale blowing from the lake brings a fresh supply of sand from the shoals which are continually forming along the shore. The floods raised by melted snows cut narrow channels through the frozen beach, by which the ponds behind are drained of their superfluous waters. As the soil gradually acquires depth, the balsam-poplars and aspens overpower the willows, which, however, continue to form a line of demarcation between the lake and the encroaching forest.

“ Considerable sheets of water are also cut off on the north-west side of the lake, where the bird's-eye limestone forms the whole of the coast. Very recently this corner was deeply indented by narrow, branching bays, whose outer points were limestone cliffs. Under the action of frost, the thin horizontal beds of this stone split up, crevices are formed perpendicularly, large blocks are detached, and the cliff is rapidly overthrown, soon becoming masked by its own ruins. In a season or two

“ the slabs break into small fragments, which are tossed up by the waves across the neck of the bay into the form of narrow ridge-like beaches, from 20 to 30 feet high. Mud and vegetable matter gradually fill up the pieces of water thus secluded; a willow swamp is formed; and when the ground is somewhat consolidated, the willows are replaced by a grove of aspens.\* Near the first and second Rocky Points,† the various stages of this process may be inspected, from the rich alluvial flat covered with trees and bounded by cliffs that once overhung the water, to the pond recently cut off by a naked barrier of limestone, pebbles, and slabs, discharging its spring floods into the lake by a narrow though rapid stream. In some exposed places the pressure of the ice, or power of the waves in heavy gales, has forced the limestone fragments into the woods, and heaped them round the stems of trees, some of which are dying a lingering death; while others, that have been dead for many years, testify to their former vitality, and the mode in which they have perished, by their upright stems, crowned by the decorticated and lichen-covered branches which protrude from the stony bank. The analogy between the entombment of living trees, in their erect position, to the stems of *sigillaria*, which rise through different layers in the coal-measures, is obvious.”‡

The following are the dimensions of Lake Winnipeg:—

Area of Lake	-	-	-	-	8,500 square miles.
Length, not in'g. Play Green Lake	-	-	-	-	280 statute miles.
Greatest breadth	-	-	-	-	57 ” ”
Length of coast line	-	-	-	-	930 ” ”
Approximate height above the sea	-	-	-	-	628 feet.

This estimate of the altitude of Lake Winnipeg above the sea level was deduced in 1857, from the levels taken across the portages along the line of the canoe communication between Fort William on Lake Superior, and Fort Alexander on Lake Winnipeg.—(See page 257 of the Report for 1857.) The height of the dividing ridge which separates these lakes from one another is 1,485 feet above the level of the sea; and distant, by the canoe route, 104 miles from Fort William and 510 miles from Fort Alexander.

Major Long, in 1823, found the sources of St. Peter and Red River to be 830 feet above the ocean, and Lake Winnipeg 630 feet above the same level—a difference of only two feet in excess of the estimate we made in 1857.

When it is remembered that the St. Peter River is an affluent of the Mississippi flowing into the Gulf of Mexico, and Red River communicates with Lake Winnipeg, which sends its surplus water to Hudson's Bay by Nelson River, the extraordinary lowness of the water-shed becomes apparent.

As it is not improbable that coming events will make all communications between the Mississippi Valley and Lake Winnipeg interesting, if not important, I venture to introduce the subjoined extract from the “Narrative of Major Long's Expedition to the Source of St. Peter's River,” performed in 1823:—

“ The St. Peter, in our opinion, probably never can be made a commodious stream; for although it flows over gradations, and not upon a slant, yet as these gradations are accumulated into the upper third of the distance between Big Stone Lake and the mouth of the river, the expense of rendering it navigable by damming and locking would far exceed the importance of the object. The plan would doubtless be found very practicable, but the scarcity of water during the greater part of the year would render these works unavailing.

“ From considerations upon which it is unnecessary to dwell, and the accuracy of which might be disputed, though they appear to us to lead to correct results, we have estimated the fall in the river, or difference of level between the Lac qui Parle and the mouth of the river, at about 50 or 60 feet. According to this estimate the average fall does not exceed two or three inches per mile.

“ The river having taken a bend to the west, we continued our route in what appeared to have been an old water-course, and within three miles of the Big Stone Lake found ourselves on the banks of Lake Travers, which discharges its waters by means of Swan or Sioux River into the Red River of Lake Winnipeg, whose waters, as is well known, flow towards Hudson's Bay.

“ The space between Lakes Travers and Big Stone is but very little elevated above the level of both these lakes; and the water has been known, in times of flood, to rise and cover the intermediate ground so as to unite the two lakes. In fact, both these bodies of water are in the same valley; and it is within the recollection of some persons now in the country, that a boat once floated from Lake Travers into the St. Peter. Thus, therefore, this spot offers us one of these interesting phenomena which we have already alluded to, but which are nowhere, perhaps, so apparent as they are in this place.

“ Here we behold the waters of two mighty streams, one of which empties itself into Hudson's Bay, at the 57th parallel of north latitude; and the other into the Gulf of Mexico, in latitude 29°; rising in the same valley, within three miles of each other, and even in some cases offering a direct natural navigation from one into the other.”

\* The fact of the formation of these detached ponds, marshes, and alluvial flats, points either to a gradual elevation of the district, or to an enlargement of the outlet of the lake, producing a subsidence of its waters.

† The strata at these points contain many gigantic orthoceratites, some of which have been described by Mr. Stokes in the Geological Transactions.

‡ If one of the spruce firs included in the limestone débris had its top broken off, and a layer of mud were deposited over all, we should have the counterpart of a sketch of Sir Henry de la Beche's Manual (p. 407). The thick and fleshy rhizomata of the *Calla palustris*, marked with the cicatrices of fallen leaves, and which are abundant in these waters, bear no very distant resemblance to *stigmariæ*.



## CHAPTER IX.

## THE MOUTH OF THE LITTLE SASKATCHEWAN TO THE SALT SPRINGS ON WINNIPEGO-SIS LAKE.

The Little Saskatchewan—Height of Bank—Country in rear—Tracking—Swamps—Banks of River—Ojibway Camp—White-Fish—Character of Country—Canoe Fleet—Spruce—Boulders—Marsh—St. Martin Lake—"Money"—Pounded Fish—Wavys—Fine Land—The Narrows—Boulder Barriers—Sugar Island—Indians—Gneissoid Islands—St. Martin Rocks—Beach Barriers—Depth of St. Martin Lake—Thunder Island—Thunder Storm—Partridge Crop River—Rushes—Old Mission—Low Country—Indian Farmer—Wide Spread Marsh—Fairford—The Character of the Country—The Mission—Evening Service—Rev. Mr. Stagg—The Farm—Hudson's Bay Company's Post—Rum—Lake Manitobah—Progress of the Season—Rocks—Fossils—The Coast—Steep Rock Point—Devonian Rocks—Indian Superstition—Water-hen River—Eagles—Character of Water-hen River—Pelicans—Indians—Wood and Prairie Indians—Barter—Winnipegosis Lake—Ermine Point—Elms—Salt Spring—Snake Islands—Duck Mountain—Snake Island Fossils—Arrive at Salt Springs.

A few hundred yards above the mouth of the river, horizontal Lower Silurian limestone shows itself on both sides, and it is through this rock that the Little Saskatchewan has excavated its bed. The limestone contains fossils in abundance, but in very bad state of preservation in many of the layers. They are similar to those found on Lake Winnipeg at Cave Point, and in its lithological aspect there is no appreciable difference between the exposures in either locality. The Little Saskatchewan, as its name implies, has a very rapid current, varying from one to four miles an hour. The banks are not more than 20 to 25 feet above its level near the mouth, and diminish in altitude in ascending the stream. They are fringed with aspen, poplar, spruce, and tamarac. In the rear swamps occur, often covered with deep moss, and sustaining clumps of tamarac and spruce of fair dimensions, but scarcely suitable for any other purposes than those which a limited settlement might occasion.

The river proving too rapid for using the sweeps, we were compelled to track up, a difficult and tedious labour to the men, but offering an excellent opportunity for making traverses into the country, which, however, were never deep, the swamps soon arresting progress inland. The general aspect of the river for the first four miles is very attractive, resembling, in many particulars, Rainy River. About three miles from the lake the limestone disappears, being covered with drift or alluvial clay. The banks rise gently with the stream, which is rapid and shallow. The yellow autumnal foliage of the aspens contrasts beautifully at this season of the year with the spruce and tamarac, and gives a charming appearance to the river banks. Towards evening we arrived at a camp of Ojibways, containing four tents. They had an abundance of white-fish, and told me the river was full of them. Anxious to test the statement, I intimated a wish to purchase a score of fresh fish, and offered an Indian some tea and tobacco if he would catch them immediately. He accepted the offer, entered his canoe, crossed over to a well-known eddy, and in fifteen minutes brought back 20 white-fish, weighing on an average three pounds each. We camped close to the Ojibways, as we knew that if we tracked a mile or so up the stream they would follow us, and our party might be increased by others in advance of them. As it was, the guns they fired at our arrival had been heard, so that at sunset several canoes came swiftly down the stream, filled with men and women to "learn the news." The whole body camped close to us, and what with talking, shouting, screaming of children, and howling of dogs, we enjoyed no rest until late in the night.

By day-break on the following morning we rose and employed a few hours in examining the country in the rear of the camp. The banks of the river are here about 20 feet above the present level of the river, but the country is very marshy, and clothed with tamarac and spruce behind the belt of aspens which fringe the river banks. After breakfast, the wind being fair, we hoisted sail, and in company with our Ojibway friends proceeded up the river. A little fleet of 23 canoes, each with a birch bark sail, glided quickly ahead of us, but the breeze freshening we soon caught and passed them one by one. The banks of the river are not more than 10 feet above its present level about nine miles from its mouth, but are rarely flooded. They consist of alluvial clay, and sustain many groves of fine spruce and aspen. At some of the bends there is a large accumulation of boulders, consisting chiefly of the unfossiliferous rocks. The colour of the trees is truly beautiful, nearly all the aspens in front are yellow even at this early period, while those in the rear, protected in some measure from the night frost, still retain their green.

About five miles from St. Martin Lake a marsh begins, on the edge of which we camped, our Indian friends soon closing with us. Some of the old men were anxious to show me some specimens of "Money" they had carefully folded in bits of cloth or birch bark. The "Money," respecting which they have no distinct idea except that it is "white," according to information they have obtained from half-breeds, consisted of fragments of selenite, iron pyrites, and silver mica. They profess to know where a large quantity of this "Money" is to be found, and demand tea and tobacco for the intelligence. These Indians have been making their autumnal fishing hunt, and have with them large birch bark vessels filled with pounded white-fish, previously dried and smoked, a miserable substitute for pemican. They had also sturgeon bladders filled with white-fish oil. The pounded fish and the oil form part of their winter stores; some samples which were submitted to me for inspection, with a view to barter, were the reverse of inviting.

September 27th.—A stormy, uncomfortable night. Wavys (*Anser hyperboreus*) flying to the south early this morning in large flocks—a sure sign, it is said, of approaching winter. The Indians say there is some fine land and large trees in the rear of this part of the river. The river from our camp to St. Martin Lake, about 13 miles in an air line from Lake Winnipeg, has marshy banks. St. Martin Lake once

reached, small eminences, which in this flat country almost deserve the name of hills, appear on the south side, so also on the north side before entering the Narrows. In general the shores are very low, particularly to the south-east. The Narrows are caused by a remarkable barrier of boulders, chiefly consisting of the unfossiliferous rocks, about six feet above the lake, and 20 feet broad. On the west side of the barrier there is an extensive wide-spreading marsh, but the water of the lake is clear, as in most limestone regions.

We arrived at this isolated body of water soon after noon, and camped on a beach or barrier thrown up in the form of semi-circular ridges about half a mile across the arc, and connected in the form of the letter S. In the formation of these ridges granite or gneissoid boulders are first pushed by ice upon a limestone gravel bar; aspens and willows grow on the ridges rapidly formed by sand and gravel washed up in the rear of the boulders; and the space partly enclosed or sheltered by the curve is soon filled with reeds, thus forming extensive marshes at the eastern extremity of St. Martin Lake. Near the channel which separates this maze from the main body of the lake a new beach is now in process of formation, and consists at present of a long semi-circular line of stranded boulders, over which the sea washes in easterly and westerly gales. Round about the boulders limestone gravel is accumulating, and thus, in this direction at least, the lake is slowly diminishing in size, the materials being in great part supplied from the wearing away of islands and the adjoining coast.

September 28th.—We succeeded in passing the Narrows before breakfast this morning, and made our way into the main lake through a channel varying from three to nine feet in depth, kept open, no doubt, by the Partridge Crop River, which takes the name of the Little Saskatchewan after it has passed through St. Martin Lake. We breakfasted on Sugar Island, being followed by the little fleet of canoes, whose owners appeared determined to reach Fairford before us, if possible.

On Sugar Island I found what appeared to be partially metamorphosed sandstone rock, tilted at an angle of  $50^\circ$ , with a S.  $30^\circ$  W., and N.  $30^\circ$  E. strike. At one extremity of the island it approached the character of gneiss, at the other extremity it presented the appearance of impure sandstone layers tilted at a high angle. Sugar Island is about a mile from the Narrows, and lies S.  $75^\circ$  E. from three small islands, which upon examination were found to consist of gneiss intersected with quartz veins. The rock on Sugar Island is exposed on one side in the form of a precipitous cliff 20 feet high. On the opposite side it slopes gradually to the water's edge. The Indians, in 18 canoes, followed us to the island, and the chief, with some ostentation, informed me that it belonged to him, but he had no objection to my exploring it. He further stated, that as chief of the band he claimed the whole country from Fisher River, on Lake Winnipeg, to the mouth of Partridge Crop River.

Sugar Island is a favourite camping ground of the Ojibways, who now occupy this part of the country. We found some graves near to a garden in which potatoes were planted. A few pieces of tobacco procured us a small supply of this precious vegetable in these regions. Sugar Island is so named from a grove of the ash-leaved maple, the trees of which bore old marks of tapping.

We went out of our course to visit the gneissoid islands before referred to. The first island bore nearly due east of Sugar Island. It consists of gneiss with rose-coloured felspathic veins, pursuing a general direction of S.  $40^\circ$  E. The axis of the island is also S.  $40^\circ$  E., and the gneiss is intersected by fissures nearly at right angles to one another, one set bearing S.  $20^\circ$ — $40^\circ$  E. The surface of the gneiss on the highest point, which may be 23 feet above the lake, is polished and furrowed in a direction S.  $55^\circ$  E. The south-east shore is precipitous, the opposite sloping.

The second island consists of gneiss with large quartz veins meandering through it. It is dome-shaped. The third island, within a few yards of the first and second, shows far less metamorphic action, and with a strike S.  $15^\circ$  W., has a dip  $75^\circ$  from the vertical. It is precipitous to the N.W., and slopes to the S.E.

Proceeding along the south-west coast, we found a barrier of beaches along the shore about 300 yards distant from it, on which boulders of the partially metamorphosed sandstone and gneiss were piled up; farther on were worn and large unworn fragments of a silicious limestone, which, however, was nowhere found in position. The occurrence of these gneissoid islands in a flat limestone country is very interesting; the metamorphosed sandstone shows that the epoch of their elevation must have been before the deposition of the limestone found on Thunder Island, to which we next proceeded, and after the deposition of the sandstone on Sugar Island. The three gneissoid islands, having no name, we called St. Martin's Rocks. It is not improbable that the epoch of their elevation was simultaneous with outbursts which have been observed in other parts of the continent. At noon we arrived at a semi-circular island of beaches similar to those at the east end of the lake. They are due to the great shallowness of St. Martin Lake, which, with an area of over 300 square miles, was nowhere found to be more than 18 feet deep, and often only five and six feet for long distances.

In the afternoon we landed on an island on which stratified limestone, in horizontal layers, was exposed. The limestone possessed some singular peculiarities. Numerous cup-shaped forms, of very large dimensions, were visible in projecting masses over the whole of the surface exposed. Many of these cups were fully 18 inches in diameter at the surface, and would hold at least one quart of water. They consisted of concentric rings, or cups, regularly arranged, and from 10 to 50 or more in number. The thickness of each cup varied from one-tenth to one-quarter of an inch. A single specimen resembled a gigantic onion which had been cut in half, with a few of the inner layers extracted, leaving a cavity or depression. Many square yards of surface were variegated with this structure. The colour of the limestone is a buff-yellow; its fracture is uneven, and masses are difficult to separate. It is extremely hard and silicious. The height of the exposure is 16 feet, and so nearly horizontal that no inclination could be detected. The island having no name, and being remarkable for its rock formation, it was thought worthy of some designation; we therefore called it "Thunder Island," in memory of a storm of hail and rain, accompanied by lightning and thunder of more than ordinary violence, which made us very uncomfortable for the rest of the day and during the ensuing night. It was the last of 20 thunder



storms which we had encountered since entering the prairies on the 14th of June, and was only second to one in violence and sublimity.

Anxious to get on we pulled at the sweeps until after dusk, having reached an island about four miles from Thunder Island. We found a sheltered cove, and all slept in the boat, there being no spot on the boulder-beach or barrier on which we could discover six feet of level ground.

September 29th.—When morning dawned, which it did in a drenching, cold rain, we found we were attached to one of the stony barriers which protect certain aspects of the islands, or main shore. The ever-present marsh lay between us and the timber we so much needed for fuel; but the wind now rising to a gale, we were compelled to content ourselves with an exploration of our boulder barrier to its utmost limits. It was about 100 yards broad, two to three miles long, and consisted of water-worn masses of limestone and gneiss, with limestone gravel between them. The marsh which separated it from the island was full of weeds, and harboured wild fowl, some of which we succeeded in killing.

We found great difficulty in discovering the mouth of Partridge Crop River, or St. Martin River, as it is also called. A maze of rushes inland, extending as far as the eye can see, hides it from view. Half a mile up the stream we saw the houses of the mission, established, but afterwards abandoned, by the Rev. Mr. Cowley. All the houses were in ruins, and tenantless. The country is very low, and liable to be flooded in the autumn and spring. There are but a few hundred acres of land fit for agricultural purposes, four or five feet above the river. The spot was one, however, of great resort among the Indians of this part of the country, and hence the probable reason why a selection of this site was made for the establishment of a mission. On landing we found one Indian family who are determined to continue the cultivation of the little fields which have been cleared and enclosed. They had accumulated three small stacks of hay, were possessed of a yoke of oxen, and were living in one of the least dilapidated houses.

We took to our boat at the beginning of Partridge Crop River, having secured a guide from the fleet of canoes in the rear to take us through a narrow passage between beds of rushes which cover many square miles, and constitute the "Crop," so called by the Indians on account of the resemblance which the outline of this reedy expanse bears to the "crop" of a partridge. We threaded our way through the mazes of a marsh supporting rushes so tall that, without climbing the mast of the boat, it was impossible to see beyond the masses which enclosed us. The rushes measured from 10 to 12 feet in length, and grew so thickly together that they formed a compact green wall, past which the current flowed as if they were formed of solid, stable materials. Through little openings, which were now and then disclosed, we saw tranquil ponds, with a scarcely perceptible stream. Here revelled hosts of ducks of many species.

We arrived at Fairford at 3 p.m., having occupied about two hours in passing through the Crop.

Fairford is very prettily situated on the banks of Partridge Crop River (a continuation of the Little Saskatchewan), about two miles from Lake Manitobah. The banks are here about 20 feet high, and show alluvial clay with boulders; but the limestone approaches the surface a short distance in the rear of the river. It is covered with eight to ten inches of vegetable mould; and although the appearance of the country is attractive, the shallowness of the soil would not permit of extensive agricultural operations. The dip of the rock is towards the south-west, but at so small an angle as to be imperceptible, except when a surface of several square yards is exposed. Fossils are few in number, and obscure; the limestone breaks up into thin slabs, being very compact and hard.

We attended evening prayers in an excellent school-house, which serves the purpose of a chapel. There were 40 persons present, consisting chiefly of half-breeds. The service consisted of a hymn and a chapter from the New Testament, respectively sung and read in the Ojibway language; an exposition of the chapter by means of an interpreter, and a concluding prayer; the Lord's Prayer was repeated aloud in Ojibway by the whole congregation.

There are 120 Christians, adults and children, at this mission. The houses are 15 in number, neat, comfortable, and in excellent order. Several new dwellings are in process of erection. The appearance of this mission is very promising, and in every way most creditable to the unceasing labours of the zealous missionary, the Rev. Mr. Stagg. We were supplied with potatoes, onions, turnips, fresh bread, and butter, and otherwise most hospitably entertained by Mr. and Mrs. Stagg. A young lady from Nottingham, England, Miss Thompson, is residing at the mission, and devotes herself with exemplary industry, in connexion with Mrs. Stagg, to the education and care of Indian and half-breed children. The farm is in capital order, and although the area adapted for cultivation is not likely to induce the establishment of a large settlement, yet Fairford will become an important centre.

The Hon. Hudson's Bay Company have a post at this mission, but it is matter of deep regret that the heathen Indians who come to barter their furs here should be permitted to have access to rum. The little fleet of canoes before spoken of arrived during the evening, and at nightfall the sounds of drunken revelry told how terribly the debasing influence of this traffic must operate against the Christian and humanizing influence of the missionary. The post had been but recently established, and the distribution of intoxicating liquors to the Indians appeared to be a subject of deep anxiety and trouble to the Rev. Mr. Stagg.

We reached the mouth of the river at noon on the last day of September, and entered Lake Manitobah with a head wind, which soon compelled a retreat to a low sheltered beach. The exposed aspens are now quite yellow, but a tint of green remains on groves at some distance from the lake shore. Large boulders are piled up high upon the beach, and behind them is the unfailing marsh. In bays limestone gravel forms a sloping beach to the water's edge, but here again in the rear is a marsh. It is only at the headlands that rock in position, or firm soil, appears as yet.

In the afternoon we set sail and arrived at Flat Rock Bay, where limestone of Devonian age is seen on the south side. Some of the layers are highly fossiliferous, and hold numbers of *Atrypa reticularis* and *A. aspera*. The stems of crinoids are common, but the species are very few. The rock is nearly

horizontal, and the general dip south-west, at a very small angle, but many slight undulations occur, giving an inclination of equal extent in an opposite direction. The exposure in the bay is 10 feet high, worn into caves. The colour is a pale buff, with some reddish-brown layers. Fucoids are abundant, and become, when weathered, yellowish-buff. Small oak are scattered near the spot where we camped, interspersed with aspen. In the rear, tamarac and spruce swamps prevented an examination of the country for more than a few hundred yards from the shore. Where rock in position does not form the beach, the marginal barrier of boulders is found with a beach, marsh, or swamp in the rear.

October 1st.—Collected fossils, breakfasted, and pulled to Steep Rock Point. Here the limestone (Devonian) is 20 feet high, quite abrupt, with six feet of water at the base of the cliff. The layers are more massive and compact than before noticed; they occur from one to three feet in thickness, are very hard, and hold many organic forms replaced by crystalline carbonate of lime. Three and a half fathoms water were found within 100 yards of Steep Rock Point. A number of swans were seen sailing in a little bay to the south of this landmark in Lake Manitobah, which, by the way, the Indians, who hunt in this part of the country do not visit, being persuaded that "little men" live in the caves and holes into which the rock has been worn by the action of the waves. We ran on before the wind, past Cherry Islands and Point Pao-nan, until dark, and then made for the shore, soon finding a small sheltered bay in the inside of a boulder beach in process of formation, about 200 yards from land. Temperature of the lake, 53°; greatest depth of water recorded, 22 feet.

A fair wind on the 2nd started us at dawn. We steered for the mouth of the Water-hen River, leaving on our left Crane River and Bay, where salt springs are found, and then passed through a narrow channel in a reef of boulders, which stretched from east to west, as far as we could see. The wind being fair, we pressed on, notwithstanding a heavy rain, and landed, rather late in the day for breakfast, on an island near the mouth of Water-hen River, which connects Lake Manitobah with Water-hen and Winnipegosis Lake. Here we found a pair of white-headed eagles engaged in fishing; and as we came suddenly upon them after rounding a point, one of them dropped a fine white-fish he had just caught, which was immediately seized and appropriated by our men for their own breakfast.

We entered one of the many mouths of the river at 2 p.m., and pulled up a broad channel through a vast marsh, whose limits are well defined by a belt of aspens on either hand. Having reached an attractive camping place, where the woods came down to the edge of the river, we landed with a view to make a short traverse into the country. The river is swift, very broad, and prettily varied with well-wooded islands. At our camp the trees consisted of white spruce, one foot six inches in diameter; poplar, aspen, birch, and tamarac. The land is low, not 10 feet above the water. In the rear we found a tamarac swamp, with belts of white spruce. The channel through which our course lay was about 300 feet broad and three feet deep, with a flat limestone bottom. The water was clear and brilliant, fish very numerous, and water-fowl abundant.

October 3rd.—*En route* at 9 a.m., the early part of the morning being employed in drying clothes after the rain of yesterday. We commenced pulling up Water-hen River, which here appears to contain many low islands, and its aggregate breadth must be several hundred yards near our camp. Signs of the approach of cold weather began to thicken around us; a large flock of pelicans, wheeling in circles far above, suddenly formed into an arrow-headed figure, and struck straight to the south. Yellow leaves drifting in the air before a cold north wind, promised us, as the half-breeds say, by the beautiful aurora of last night. (See "*Auroras*," p. 146.) Islands, low and reedy, continue to appear until we arrive at the Great Bend, where a band of Indians have their winter quarters. The Indians are Roman Catholics, originally from Oxford House. I persuaded one of them to act as guide up Moss River to Dauphin Lake, after we had visited the salt works. Their tents were dirty and excessively odorous. In general the Indians of Lake Winnipeg and Manitobah, in point of cleanliness, cannot bear comparison with the Prairie Indians.

We met here, also, a freighter-boat, in charge of a French half-breed, who, with his family, were returning from the salt springs to Oak Point with about 12 bushels of salt. We exchanged a little tea and tobacco for ducks and fish; and on the following morning started by the middle branch of Water-hen River for Winnipegosis Lake, leaving Water-hen Lake to the north. The river is broad, shallow, and reedy; a low belt of aspens, a mile off, on either side, shows the only land visible.

A fair wind drove us swiftly on, and at noon we stopped at Ermine Point, on Winnipegosis Lake. This is a low beach, with a marsh behind, and is remarkable for some fine old elms, crooked and gnarled, still flourishing on the spit, near to a salt spring. At 4 we reached Snake Island, where we camped early, for the purpose of examining an exposure of rock, and to collect the fossils which a glance showed it contained in abundance. The Duck mountain loomed a grand object in the north-west.

The rock exposures on Snake Island are very interesting, not only on account of the fossils they contain, but in consequence of the evidence they afford of a slight upheaval, so rare in the present disposition of the rocks of this region.

The exposure at its highest point does not exceed 20 feet, but it is the centre of a low, narrow, anticlinal, running north and south nearly. The dip on the east side is S. 75, E.  $\angle$  18°; and on the west, W. 20, S.  $\angle$  5°. The limestone is highly fossiliferous, beautifully stratified, very hard, and bituminous. It holds abundance of *Atrypa reticularis*; *Tellina ovata*; with fossils belonging to the genera *Favosites*; *Euomphalus*; *Productus*; *Gomphoceras*; *Orthoceras*; *Lituities*; together with *Trilobites*; *Crinoids*, &c. Mr. Billings thinks this locality unquestionably Devonian.

On the morning of the 5th of October we set sail from Snake Island, and arrived at the salt works and springs at noon.



## CHAPTER X.

## THE SALT-SPRINGS, ON WINNIPEGO-SIS LAKE, TO THE SUMMIT OF THE RIDING MOUNTAIN—THE SUMMIT OF THE RIDING MOUNTAIN TO MANITOBAH HOUSE.

Character of the Country—The Duck Mountain—The Salt Springs—The Wells—The Manufacture of Salt—Salt Springs and Lagoons—Moss River—Rapids—Character of River—Valley or Dauphin River—The Riding Mountain—Lake Ridge—Hay Ground—Dauphin Lake—Pike—Snow Birds—Journey to the Summit of the Riding Mountain—Marshes—Ridges—Character of the Country—Whiskey Jack—Quaking Bog—Pitching Track—Rabbits—Foot of Mountain—Cretaceous Rocks—Plateaux—Conical Hills—White Spruce—Brown-nosed Bear—Summit of the Riding Mountain—Character of the Country—Former Character of the Riding Mountain—Denudation—Table Land—Snow Storm—Source of the Rapid River—Indian Superstition—Descent of Riding Mountain—Character of the Mountain—Fish—Sickness—Cupping—Ta-wa-pit—Great Bones—Grasshoppers—Journey from Dauphin Lake to Lake Manitoba—Character of the Country—Bogs—Aspen Ridges—Ridge Pitching Track—Ebb and Flow Lake—Indian Tent—Interior of—Supper—Sleep—Buffalo Runner—Manitoba House.

The surface of the country where the salt springs are found is only a few feet above the level of Winnipegosis Lake, and apparently nearly horizontal for many miles inland, in a north-west course. The barren area occupied by the Springs and wells is about 10 acres in extent; but the open country, with points of surrounding forest converging towards the Springs, may include several hundred acres. The trees in the vicinity consist of spruce, aspen, willow, birch, and a few stunted oak. The wells are five feet deep, and the water in them was 2 ft. 5 in. above the level of the lake on the 5th of October, as ascertained instrumentally. The wells are found upon a slight elevation, probably mechanically raised by the ascending brine to about two feet above the country in the rear, which, in a southerly direction, gently inclines and blends with a vast marsh connected with Moss River. The woods fringing this marsh approach within a mile of the Springs, west and north-west.

The level country extends across the peninsula from Red Deer's Point, about three miles in breadth, to a deep indentation of Lake Winnipegosis, about five or six miles broad; after which it continues low and marshy, with tamarac, aspen, and white spruce woods to the foot of the Duck Mountain, a distance of 16 to 18 miles. From Snake Island, and even from the level of Winnipegosis Lake, a few miles from shore, the country between the foot of Duck Mountain and the Lake does not present a single eminence to break the level from which the Duck Mountain rises. It resembles, in every important physical feature, the level tract at the base of the Riding Mountain. These observations apply only to that part visible from Snake Island and the lower portion of Winnipegosis Lake.

The soil at the Salt Springs is a very retentive yellowish-white clay, containing small limestone boulders and pebbles, with boulders of the unfossiliferous rocks. The wells, for obtaining a supply of brine, are sunk wherever a small bubbling spring is observed to issue from this retentive clay. The springs are constantly changing their position, and as the wells become exhausted from time to time, a fresh excavation is made where a new spring is observed to issue. No doubt boring, or deeper wells, would prevent these changes, and not only secure a larger flow of brine, but ensure its permanency. The wells at present are 25 in number; but some of them appear to have been lately abandoned, and others have long since ceased to yield brine. They are situated 400 yards from the lake shore, and were first worked 40 years since by James Monkman. This enterprising individual struggled for many years against the importation of English salt, which was sold in the settlements at a cheaper rate than he could afford to manufacture salt on Lake Winnipegosis. He has made salt at Swan River and Duck River. The manufacture is now carried on with profit for the Hudson's Bay Company, at Swan River, and at Winnipegosis Lake by Monkman's sons.

At the "Works" there are two small log houses and three evaporating furnaces. The kettles, of English construction, are well-made rectangular vessels of iron, five feet long, two feet broad, and one foot deep. They are laid upon two rough stone walls, about 20 inches apart, which form the furnace. At one extremity is a low chimney. The whole construction is of the rudest description; and at the close of the season the kettles are removed, turned over, and the furnace permitted to go to ruin, to be re-built in the following spring.

The process of making salt is as follows:—When a spring is found, a well, five feet broad and five feet deep, is excavated, and near to it an evaporating furnace erected. The brine from the wells is ladled into the kettles, and the salt scooped out as it forms, and allowed to remain for a short time to drain, before it is packed in birch bark roggins for transportation to Red River, where it commands 12s. sterling a bushel, or one hundred weight of flour, or a corresponding quantity of fish, pemican, or buffalo meat, according to circumstances.

The brine is very strong. From one kettle two bushels of salt can be made in one day in dry weather. There are nine kettles at the "Works," seven being in constant use during the summer season. The half-breeds engaged in the manufacture complained of the want of fuel—in other words, of the labour and trouble of cutting down the spruce and poplar near at hand, and the difficulty of hauling it to the furnaces. An objection of no moment, but characteristic of some of the people, who are generally unaccustomed to long-continued manual labour. Unfortunately I had no instrument with me for ascertaining the specific gravity of the brine, and a supply which I took to Red River for that purpose, as well as with a view to its analysis, still remains in the settlements. It will be seen that the processes employed in the manufacture of salt are of the rudest description, so that without any outlay beyond a few days' labour, the quantity might be largely increased. I spoke to John Monkman, who now makes salt here, of pumps and solar evaporation. Of a pump he knew absolutely nothing. He

had heard that such an apparatus had been contrived, but had never seen one. He readily comprehended the advantage to be derived from pumping the water into shallow troughs dug in the retentive clay near the springs, and strengthening the brine by solar evaporation. An Indian guide, who accompanied us up the Moss River, assured me that all along the west coast of Winnipegosis and Manitobah Lakes there are salt lagoons and springs. The Indians we met on the Dauphin Lake make the same acknowledgment, but declined to give precise information, alleging that the manufacture of salt drove away the game, and spoil their hunting.

The extent, character, and importance of the Salt Region in Rupert's Land will be discussed at length in another chapter.

October 6th.—Left the Salt Springs, and sailed before a stiff breeze to the mouth of Moss River. We found four feet of water on the bar, and nine feet at the mouth of the river. A low exposure of limestone occurs near the entrance, and another one mile and a half up the stream. The dip is very irregular. The fossils are few in number, and obscure. In its lithological aspect it resembles the exposure on Snake Island, seven miles distant, in a north-east direction. The rock is curved, and fractured in places, showing in an exposure 120 yards long and nine feet high, inclinations varying from 20° to 40° east, with short horizontal intervals. Some of the layers are extremely hard, others fissile, others crystalline, with crystals of calc spar between the layers and in the fractures.

We arrived at the first rapids on Moss River during the afternoon. They have a fall of two feet, and consist of an accumulation of boulders resting on rock. The second rapids are formed by similar obstructions. The river is here 120 feet broad, and very shallow. The bank, 10 feet above the water, sustains fine aspens, with a very thick undergrowth. The soil is clay, and evidently fertile near the river, but in the rear the country passes into muskeg. In ascending the second rapids, the boat had to be lightened, and hauled up by the men walking in the middle of the stream. The temperature for such work was not conducive to comfort or health, and two of the men caught severe colds, with cramps and pain in their limbs.

October 7th.—A sharp frost during the night. Ice formed on the oars in the morning. Temperature of air, at 8 a.m., 30°; of the river, 42°. The thermometer during the night fell to 26°. All the leaves are now fallen, and the country presents a very dreary appearance. The whole of the day was spent in rowing or tracking up Moss River. The bank continues from 12 to 15 feet high, and sustains some very fine aspens, 12 to 15 inches through, with a dense growth of young trees springing up in the place of a former fine aspen forest, of which the large trees are the remains. The river continues very shallow, and contains many boulders of the unfossiliferous rocks.

There is a large area of good land on the west side near to Dauphin Lake, which secluded sheet of water we entered at 4 p.m., and came at once in sight of the Riding Mountain in front and the Duck Mountain on our right. Both are very imposing ranges from this point of view, presenting similar aspects; both rising from a level country, a few feet above Dauphin Lake; and, as far as the eye could judge, both maintaining the same elevation, and presenting abrupt wooded escarpments towards the east. They are separated by Valley River, and it is apparent that they were, at one epoch, united, forming part of the great table-land which stretches south-westwards toward the Grand Coteau de Missouri.—(See Section along the 51st parallel, and in the direction of the dotted line on the Geological Map.)

In the evening we passed the mouth of the Valley, or Dauphin River, or *Te-wa-te-now-secbe*, and camped on a beautiful beach, with a few fine oaks growing upon a ridge close to the water's edge.

On the following morning we started at daylight for a part of the coast nearest to the Riding Mountain. At a distance this magnificent range appears to be clothed with forest, and to rise from a level plain to the height of about 800 feet above the level of Dauphin Lake.

As soon as we arrived opposite to what appeared to be the highest part of the range, we landed, and despatched an Indian to explore the country, and report on the nature of the swamps we should have to pass in attempting to reach the summit. During his absence we set nets, and levelled across the ridge which separates the lake from an extensive fertile meadow which lies between it and the mountain. The ridge is 8.96 feet above the present level of Dauphin Lake; the meadow, 5.70 feet; and so continues for a distance of one mile, with an almost imperceptible rise until a second low ridge is reached. The meadow is covered with long, luxuriant grass; a few clumps of poplar and thickets of willow vary its uniformity. There are, no doubt, many thousand acres of excellent hay ground on the banks of Dauphin Lake, but the breadth of the tract did not appear to exceed two miles. The oak, on the ridges, occurs in patches, and the trees are from 12 to 15 inches in diameter.

Dauphin Lake is 21 miles long, has a greatest breadth of 12 miles, and an area of 170 square miles. Its approximate elevation above the level of the sea is 700 feet, or 72 feet above Lake Winnipeg. It is very shallow.

Our nets produced five splendid pike, weighing about 15 pounds each.

At the close of the day the Indian returned. He had advanced to the first great ridge, about nine miles distant, and reported 18 inches of water in the swamps, with ice a quarter of an inch thick.

Snow-birds were seen for the first time during the afternoon. They came about our camp in large flocks, but they did not appear to have quite assumed their winter dress. The evening and part of the night were spent in making arrangements for an ascent of the Riding Mountain. We took provisions for four days, a blanket for each man, with a good supply of guns and ammunition. Three of the men were left in charge of the boat, with instructions to cure all the fish they could take, as the danger of being arrested by ice in Lake Manitobah was not improbable. That large body of water has been known to freeze as early as the 25th of October.

At sunrise on the morning of the 9th of October, we set out for the ascent of the Riding Mountain. Each man had a pack weighing about 30 pounds. My share consisted of a sledge-hammer for geological purposes, which proved to be an extremely inconvenient article to carry across swamps or through



bushes. Once, indeed, when crossing a quaking-bog, with the hammer on my shoulder, I received a severe blow on the back of the head as I broke through the covering of moss over which we were pushing our steps, and endeavoured to fall flat on the springy surface.

For the first mile and a half the country is quite level and dry, with the exception of three narrow shallow marshes. The soil is excellent, and the hay abundant; but no doubt in spring this extensive flat must be very wet, and probably to a considerable extent under water. In its present condition, the pasturage it affords is very luxuriant and abundant. We soon arrived at a low ridge, which marks the limit of the good land, not averaging more than two miles from Dauphin Lake. To the ridge succeeded marshes and willow brakes. These were bounded by low gravelly ridges, clothed with aspen, which were again succeeded by marshes.

Finding it quite impossible to outflank the marshes, which appeared to stretch from river to river descending from the mountains, and to be co-extensive with the shores of the lake, we determined to push through to the highest peak, which was in reality the nearest point of the mountain to us, its greater altitude being only apparent on account of its proximity, as we afterwards ascertained. In an hour we arrived at a white spruce swamp, in which many fine trees, fully 18 inches in diameter, were observed. Beyond the white spruce swamp we came to an old lake ridge, about 15 feet above the general level, rounded, and composed of limestone gravel, with many boulders of the unfossiliferous rocks on the south or land side.

This ridge resembled the Big Ridge of the Assinniboiné in most particulars. Our Indian guide told us that it extended for many days' journey north and south of Dauphin Lake. It forms the Indian pitching track, at the foot of the Riding Mountain.

The term "pitching track" is applied to an Indian trail from one part of the country to another. West of Lake Manitobah, Dauphin Lake, and Winnipegosis Lake, the "pitching track" follows the ridge described in the text. It is, in fact, the main and only dry road in this region. On the crest of the ridge there is a narrow well-worn path, which, for many generations probably, has been the highway of the Indians passing from Lake Manitobah to the Assinniboiné, through the valley of *Te-wa-te-now-seebe*, or "The river that divides the hills." This pitching track is marked on the map as "Scrub Oak" and Aspen Ridge." It is connected with "The Ridge pitching track," between Ebb and Flow Lake and Dauphin Lake.

The Whisky Jack is numerous on the Scrub Oak Ridge, and in the Spruce Swamp were several ravens. Formidable marshes succeed the ridge. We waded knee deep for half a mile, and then rested for a short time on a small island, on which stunted aspens grew. We continued to pass through marshes, aspen islands, and over low ridges clothed with willow, until a bog of such a quaking character, and of such great breadth, presented itself, that the men demanded a smoke before attempting to cross. Our Ojibway half-bred, Wigwam, insisted upon carrying the sledge hammer in addition to his pack, declaring that he was accustomed to quaking bogs, and we should have enough to do to get across, without carrying anything that might impede our progress. The surface of the bog consisted of a thick elastic covering of moss, sufficiently tough to bear our weight when passing quickly over it, but if we stopped for more than half a minute, the moss slowly sank, and a pool of water collected around us. We marched or rather trotted in single file, about ten yards apart. The Indian who took the lead passed nimbly over the surface, so also did the half-breeds; Mr. Fleming and I, however, two or three times broke through with one leg, but succeeded in withdrawing the unfortunate member without further damage than immersion in water and mud, emitting a very unpleasant odour. Occasionally we rested on a narrow strip where the tangled roots of a few willows afforded a firm footing. The breadth of this bog was about one mile where we crossed; it was succeeded by a belt of tall reeds, growing in water one foot deep; plunging and wading through this, we arrived at a gently sloping ridge, about 18 feet in altitude. On the other side of this ridge a narrow deep swamp separated us from the foot of the mountain; wading through it, we ascended a hill about 40 feet high, and found ourselves upon a dry plateau, on which we determined to camp, having accomplished a distance of about 11 miles. The men soon dispersed to hunt rabbits; a dozen were killed in a few minutes, skinned, and placed on sticks before the fire to roast.

In passing through the swamps we saw many fresh moose tracks, hunters' signs, which aroused the Indians and half-breeds to a high pitch of excitement, and caused them to steal swiftly on their wet and treacherous path with a speed which we found it very difficult to maintain, although they entertained no hope of coming within shot of such noble game, in consequence of an unfavourable wind, even if we had been able to preserve the necessary silence in passing through the haunts of this wary animal.

The timber on the hill at the foot of the mountain consists of aspen, with a few small oak. The soil on the plateau is of excellent quality, and the underbrush very luxuriant.

The night promising to be very cold, ice forming on the kettles within a few yards of the camp, we built two large fires and slept between them, having previously dried our wet clothes as far as circumstances would permit. At 8 p.m., the sky was quite free from clouds; the comet shone with brilliant lustre, a flashing aurora gradually spread over the northern sky, the stars shone like diamonds in the south, and the whole heavens assumed that aspect of silent beauty which renders night in the wilderness so impressive and sublime.

October 10th.—Soon after breakfast we arrived at a steep embankment about 70 feet high, which formed the termination of a plateau about a mile broad, covered with small aspens, and threaded with Moose paths. The plateau ascends very gradually, and is abruptly bounded by a hill bank, from which a broken hilly tract rises towards the escarpment, which forms the eastern limit of the Riding Mountain. This broken tract is covered with aspens and spruce of large size, especially in the hollows. We crossed the beds of two or three streams, which flowed through deep gullies to the plain below. So far, the soil consisted of drift clay, with many large boulders in the beds of the rivulets; but at an altitude of about 400 feet above Dauphin Lake we arrived at a cliff-like exposure of Cretaceous rocks, through which a

stream had cut a channel 70 to 90 feet deep. These rocks seemed to form the boundary of a third plateau, on which were numerous conical hills, consisting of gravel and boulders of the unfossiliferous rocks. The stratification appeared to be nearly horizontal, with a very slight dip to the south-west. Although a careful search was made for organic remains, very few were discovered. These were identical with those found on the Little Souris, and in every particular, except the occurrence of bands holding *Inoceramus*, the rocks on the Riding Mountain resembled the exposures on the Little Souris. The layers containing ferruginous concretions were found, as well as a soft thin band, from which the Indians make their pipes. The total thickness of the exposure exceeded 100 feet.

We now followed a moose path until we arrived at a high conical hill, which promised a fair view of the surrounding country. Having reached the summit, the relation of the conical hills and plateaux became evident. A wide deep valley separated us from the table-land of the Riding Mountain, about one mile distant in an air line, and perhaps 200 feet above us. Three plateaux were distinctly visible below us; a range of conical hills, the result of atmospheric agencies, lay at the foot of the precipitous escarpment of the mountain, and followed its general direction. Limestone and unfossiliferous boulders were strewn on the summits and flanks of the weather-worn hills, while in the hollows between them, small lakes lay half concealed by a fine forest of white spruce and aspens. From the brow of the hill where we stopped to dine the Indian shot a large brown-nosed bear, which suddenly appeared on the plateau below us about 70 yards from our camp fire. His skin was in good condition, and remarkably handsome; the animal might weigh 350 lbs., although not yet fat. Leaving three men to cut up and prepare the meat, we commenced the last ascent, and arrived at the summit of the Riding Mountain at three in the afternoon. The last ascent was very abrupt; it consisted of a steep escarpment of drift clay with boulders, covered with a fine white spruce, birch, and aspen forest. At the foot of the escarpment were ponds or small lakes, which fed the mountain streams we had crossed.

The view from the summit was superb, enabling the eye to take in the whole of Dauphin Lake and the intervening country, together with part of Winnipegosis Lake. The outline of the Duck Mountain rose clear and blue in the north-east, and from our point of view the Riding and Duck Mountains appeared continuous, and preserved a uniform, bold, precipitous outline, rising abruptly from a level country lying from 800 to 1,000 feet below them. The swamps through which we had passed were mapped in narrow strips far below; they showed by their connexion with the ridges, and their parallelism to Dauphin Lake, that they had been formed by its retreating waters. The ancient beach before mentioned, as extending far to the north and south, could be traced with a glass, by the trees it sustained, until lost in the distance; it followed the contour of the lake, whose form was again determined by the escarpment of the Riding Mountain. It required no effort of the imagination to recall the time when the whole of the flat country below us, towards the Laurentides on the east side of Lake Winnipeg, was occupied with the continuation of the Riding and Duck Mountain ranges, and when the Cretaceous series, superimposed in patches by Tertiary rocks, extended to the basin of Lake Winnipeg as it now is. The whole of this immense denuded tract of country is a splendid instance of the power of water and ice to remove many thousand cubic miles of rock.

It seems very probable that before the Boulder Drift period, the chain of mountains beginning with Turtle Mountain, near the 49th parallel, and terminating with the Porcupine and Basquia Ranges, including the Riding and Duck Mountains, were part of a high table land, composed of Cretaceous and Tertiary rocks, which extended from the Grand Coteau de Missouri to the Laurentides. The areas most affected by denudation are now occupied by Lakes Winnipeg, Manitobah, Winnipegosis, and the valleys of their tributaries; the precipitous eastern escarpment of the mountains show the action of oceanic agencies to which they would be directly exposed, if the country were submerged to more than 1,000 feet, and from the distribution of boulders there can be no question that a submergence to a far greater extent has taken place since the Tertiary epoch. The connexion of these ranges will be best seen by an inspection of the map.

The occurrence of drift and boulders of the unfossiliferous rocks on the summit of the Riding Mountain proves that this portion of the country was submerged to an extent exceeding 1,700 feet, that being the average altitude of the range above the ocean.

The summit of the Riding Mountain is a vast table land declining in steps to the Assiniboine. The forest which covers the upper plateau consists of very fine white spruce, birch, poplar, and aspen; the dimensions of some of the trees about our camp are given on page 26. Soon after our arrival at the summit clouds began to gather in from the north-west, and towards evening a snow storm set in, which continued during the greater portion of the night. Beneath the shelter of the overhanging branches of a spruce we made an excellent camp, and having built a roaring fire, soon found ourselves comfortably supping on bear steaks as we reclined on a couch of spruce boughs, under a roof impenetrable to snow, constructed of the same excellent material.

October 11th.—When morning dawned we found the country covered with a mantle of snow, six inches deep. This did not prevent us from making a traverse in the direction of the lakes from which the Rapid River takes its rise. The course we had taken led us, as was afterwards ascertained, to within a few miles of the spot reached by Mr. Dickinson when he ascended the valley of Rapid River, a few weeks before. This was precisely the result I was anxious to attain. An inspection of the map will show that our explorations, when combined, passed through a comparatively unknown country, nearly along the 100th degree of longitude west of Greenwich, and stretching from the 52nd to the 49th parallel of latitude; thus embracing part of Winnipegosis Lake, Moss River, Dauphin Lake, the Riding Mountain, the Little Saskatchewan or Rapid River, and the Little Souris, to the 49th parallel.

Our progress to the south was soon arrested by a lake, and the lateness of the season made it advisable not to linger too long in this region, lest we should be arrested by ice forming in the great lakes below. Anxious to kill a moose, I endeavoured to persuade the Indian to follow a fresh track,



but he declared that the mountain was full of devils, and that the grizzly bear was not unfrequently met with, so that no persuasion could induce him to follow the track unless a half-breed accompanied him. The sky and air becoming quite free from clouds and mist before 10 a.m., we were enabled to take bearings of different prominent points. After measuring a number of trees in the neighbourhood of our camp, we commenced to retrace our steps at noon. The course followed was a little to the left of our track on the preceding day, and the following rough estimate of the ascents, descents, and distances were carefully noted.

The first descent from the summit is about 250 feet deep, and very precipitous; where the snow had not lodged, boulders were seen reposing on unstratified clay and gravel; a narrow gully is then crossed, and an ascent of 40 feet made to a terrace sloping towards the east; on this terrace are the conical hills before alluded to. The descent continues for a further depth of 150 feet in a distance of half a mile, this brought us to the edge of a ravine 70 feet deep. At the bottom flows a small stream over gravel and boulders. A rise of 30 feet led us to the top of the opposite bank, along which we travelled, until we came to its termination at the beginning of a second terrace about 80 feet below us. This narrow table-land is consequently 480 feet below the summit, and on it we found the second range of conical hills. A gradual descent for a quarter of a mile lowered us about 30 feet; we then ascended a bank about 20 feet high, and found ourselves on the edge of a precipitous descent 150 feet deep, which brought us to the third terrace, and to the edge of a ravine 60 feet deep. On the sides of the ravine, and far above it, exposures of cretaceous rocks were seen; the highest spot where the rock was observed, in position, is probably between 400 and 500 feet below the summit, or about 500 feet above Dauphin Lake. A sudden descent of 120 feet then occurred, which brought us to a fourth terrace, bounded by a steep bank, to which succeeded a gentle slope, and then a low ridge where we had formed our camp on the 9th. We arrived there wet, cold, and uncomfortable; the temperature was much higher than on the mountain, and during the day the snow of the previous night had entirely disappeared, as we descended, but a drenching rain instead promised a very disagreeable night, as we could find no friendly spruce near at hand to afford shelter and protection.

Tuesday, October 12th.—The greater part of this day was spent in retracing our steps to Dauphin Lake. The walk through the marshes and bogs was found to be more fatiguing than during our ascent, in consequence of rain and the ice-cold water in the swamps. Two of the men complained of rheumatic pains, and were incapable of doing any work upon their arrival at the camp in the afternoon. During our absence the men left at Dauphin Lake had set the nets, and caught some fine pike. The precipitation which had occurred on the Riding Mountain in the form of snow, was here a drizzling rain, which again commenced soon after our arrival, and continued throughout the night. On the following morning one of our best half-breeds was seriously ill, he complained of excruciating pains in the head and limbs; he found, however, great relief from cupping, which the Indian performed with a flint and bowl of a tobacco-pipe. At noon we started in the boat for an Indian encampment at the west end of the lake, about six miles distant. Here we found Ta-wa-pit, an old Ojibway, with two sons and their wives and children. Having made arrangements with Ta-wa-pit for the hire of two horses and a guide to cross the country to Manitobah House, Mr. Fleming took charge of the boat, to return by Moss River, while I remained with one half-breed to make the land journey round the south side of Dauphin Lake to the Company's post on Lake Manitobah, which was to be our rendezvous.

October 14th.—Ta-wa-pit stayed during the greater part of the night by our camp-fire, talking with the half-breed, smoking and drinking tea. He pointed out the spot near to us where he was accustomed to take salt from the edges of a spring during the summer months. He described also at length the appearance and virtues of some gigantic bones exposed in the bank of Valley River near where it cuts through the old Lake Ridge. Ta-wa-pit calls these bones a great medicine, and, contrary to the usual custom of the Indians, he now and then takes small fragments, bruises them to powder, and uses them as a medicinal preparation. From his description I infer that the bones are those of a mammoth; his rough drawing in the sand of the ribs and teeth corresponded, in point of dimensions, with those of that gigantic animal.

Ta-wa-pit and family live a very retired life on the shores of Dauphin Lake. The old man is evidently of a misanthropic turn of mind; he does not associate with other Indians who hunt and live on Moss River and the northern part of the lake. His potatoes, of which he planted a small patch in the spring, were completely destroyed by grasshoppers, affording another proof of the immense range and devastating progress of these insects in Rupert's Land during the past two or three years. Ta-wa-pit showed me a knife he had made out of an old file, and some pipes he was making from a soft shale, procured in the Riding Mountain some miles south-west of his tent. The shale was similar in all respects to a band I had noticed on the little Souris, and in the exposure just described as occurring on the flank of the Mountain, and from which the half-breeds had taken small blocks to make pipes. A couple of pounds of buck shot, which I divided among the old man and his sons, delighted them beyond measure; in return for this welcome present, Ta-wa-pit presented me with a new pipe and the moufle of a moose.

The hop grows in great luxuriance and abundance at the south end of Dauphin Lake; there is fine pasturage as far as the old lake ridge, but the narrow strips of marsh and quaking bog almost on a level with the dry portion show that these extensive flats are liable to be submerged in the spring.

Our course to-day followed for a few miles the shore of the lake until we came to Turtle River; having crossed this affluent from the Riding Mountain in a small canoe, we took an easterly direction and entered a dreary region of swamp, ridge, and quaking bog. During the whole of the afternoon our course lay through marshes and bogs, separated by low ridges covered with aspen. The horses were quite useless, and frequently stuck fast; when this occurred we were compelled to carry the bedding and provisions to the nearest ridge and help the wretched animals through the deep bogs into which they sank at every step, breaking through the elastic covering of moss which was generally of sufficient

strength to support a man running lightly over it, but not tenacious enough to bear the weight of a horse. Just as night closed in we arrived at a dry gravelly ridge where there was a plentiful supply of dead aspen, from which we made a roaring fire and soon dried our wet clothes and blankets. The night was bitterly cold, and the exertion of wading for many hours together through ice-cold water caused every limb to ache; the Indian guide thought nothing of it, and immediately after supper lay down before the fire and was soon sound asleep. Two or three times in the night I rose to replenish the fire and found the Indian without any covering but the wet skin clothes he had worn during the day, curled up on the bare ground and enjoying profound slumber.

Early on the following morning we arrived at the Ridge Pitching track, which we continued to follow for a few miles, and then again descended into a region of swamps and quaking bogs. In no respect does the Ridge Pitching track between Dauphin Lake and Ebb and Flow Lake differ from the Big Ridge of the Assiniboine except in altitude. It is about 100 yards across, evenly rounded, composed of gravel, and covered to a great extent with the bearberry. On either side are small oaks and aspens, succeeded by marshes. Its altitude above the marsh is about 15 feet. The guide said it formed an extension of the ridge on White Mud River described in Chapter VII.; and if this be the case, no better means of communication by land with this part of the country could be found than the Ridge Pitching track.

Soon after leaving this excellent road we stuck fast in a quaking bog about one mile broad. The horses were mired, and it was only by dint of the greatest exertion and much cruel beating that the Indian and half-breed succeeded in getting them on to dry land. In the afternoon we arrived at Crow Creek, and the country becoming drier, we were enabled to make better progress. After passing Sucker Creek, which, with the streamlet before named, flows sluggishly in a trench about 10 feet deep, we arrived at a small open prairie surrounded with tall aspen woods, and covered with a splendid crop of wild hay. Here we met an Indian who was setting traps, the hunting season having already commenced. He invited us to his tent, which was placed on the shores of Ebb and Flow Lake, not more than 12 or 14 miles from Manitobah House. It turned out that the half-breed with me knew the Indian well by reputation; he is one of the most successful and industrious hunters in this part of the lake region. His tent was well supplied with Indian luxuries, such as tea, tobacco, and coarse clothing. In the small prairies near us were several fine buffalo runners; and if Indian habits and customs would permit of the accumulation of wealth, our host might soon become a rich man.

His tent was of birch bark, roomy and clean. Thirteen persons, including children, squatted round the fire in the centre. On the floor some excellent matting was laid upon spruce boughs for the strangers; the squaws squatted on the bare ground; the father of the family on an old buffalo robe. Attached to the poles of the tent were a gun, bows and arrows, a spear, and some mink skins. Suspended on cross pieces over the fire were fishing nets and floats, clothes, and a bunch of the bearberry to mix with tobacco for the manufacture of kinni-kinnik.

Soon after we entered the squaw began to prepare supper, which was done by boiling white-fish and potatoes together. When cooked the whole was poured into a large tin dish and handed to me, together with a cup of tea. Helping myself, I passed the dish to the Indian, but he laid it at his feet. As soon as I had finished my supper the Indian helped himself and the half-breed, and then passed the dish to his squaw, who divided the remainder among the other inmates of the tent. These consisted of an old, watchful, restless Indian woman, the mother of the mistress of the tent; a newly married couple related to our host; the Indian guide from Dauphin Lake; and five children. After supper I spread my blanket and lay down, quite overcome with the long continued exertion of wading through swamps and quaking bogs, but too tired to sleep. The half-breed and Indians sat talking for many hours before they turned their feet to the fire, rolled themselves up in a blanket, and seemingly at once "found sleep."

On the following morning I rose with a few aches and pains, which the succeeding events of the morning rapidly dispelled. After breakfast my Indian host offered me a favourite buffalo runner to ride to Manitobah House. The exertion required to manage this animal soon removed all unpleasant rheumatic symptoms. Her extraordinary sagacity is elsewhere related (Chapter XII.), but her mouth was evidently formed of sole leather, and not amenable to persuasions administered through an Indian bridle. The country on the shore of Ebb and Flow Lake is low, but well fitted for a limited settlement. There is an abundant supply of aspen timber, with a few oak and birch. I arrived at Manitobah House soon after noon, and was cordially received and hospitably entertained by Mr. Mackenzie, the gentleman in charge.

## CHAPTER XI.

MANITOBAH HOUSE TO MANITOBAH ISLAND—MANITOBAH ISLAND TO OAK POINT—OAK POINT TO THE SETTLEMENTS ON RED RIVER.

Mr. and Mrs. Mackenzie—Manitobah House—Messenger—Missionary Privations—Want of Supplies—Communication with St. Paul—Future Supplies more constant—Snow Storm—Indian Summer—Snow Birds—Manitobah House—Rock—John Campbell—White fish—Importance of—Aspect of Country—The Narrows—Manitobah Island—Dimensions of—Oak—Rock Formation—Fossils—Indian Superstitions—Fairies—Signals—Arrival of Boat at Manitobah Island—Coast of Lake Manitobah—Old Mission Station—Unfitness of this part of the Coast of the Lake for Settlement—Indian Liberality—Monkman's Point—Cause of the Formation of Marshes—H. B. Co.'s Breeding Establishment—Oak Point—Dimensions of Lake Manitobah—Prairie bordering the Lake—Shoal Lake—Character of the Country—Big Ridge—Little Ridge—Arrive at the Settlements.

I remained one week at Manitobah House, waiting for Mr. Fleming, who was detained by contrary winds. To Mr. and Mrs. Mackenzie I am indebted for much generous hospitality, and have great



pleasure in possessing this opportunity of acknowledging their kindness, and the endeavour they made to give me all the assistance and information in their power. Manitobah House is in a very dilapidated condition, but Mr. Mackenzie has erected another dwelling, which was nearly completed during my stay. A Roman Catholic mission formerly existed here, but having been abandoned, the buildings were sold to the H. B. Co., and in the year following the transfer they were accidentally destroyed by fire.

On Saturday, the 16th October, a messenger arrived from Fairford on his way to Oak Point, whither he was journeying for the supplies of the mission in charge of the Rev. Mr. Stagg. Those who have not experienced the privations resulting to missionaries in distant out-posts from the non-arrival of their supplies by the customary route, and at the expected season, can form but a feeble conception of the troubles and anxieties which chequer the life of a zealous missionary in Rupert's Land. It is not mere personal inconvenience which causes him care and embarrassment; it is the impossibility of taking advantage of many opportunities for inducing wandering Indians to settle around the mission, of clothing and feeding the children entrusted to his charge, and of securing, by aid judiciously applied, the respect and affection of those he is endeavouring to Christianize or educate, or seeking to draw from their faith in strange and imaginary gods.

The Indian generally, from his habits and precarious mode of subsistence, requires something tangible in the first instance to arrest his attention, and practical encouragement, often repeated, to secure his good-will, before an impression can be made on his heart. If the missionary is cut off from his supplies in the infancy of a mission much of his work has to be done over again. Indian wants are few and simple, but they must be supplied without fail at new stations; hence the importance, if success is to be secured, of effecting and sustaining a tolerably regular communication once or twice a year with the settlements at Red River.

Mr. Stagg has suffered much inconvenience from being disappointed in obtaining supplies of clothing and other indispensable articles for the children and adults, now Christian members of his mission, and the messenger who arrived at Manitobah house was despatched at his expense to bring the necessaries which had been brought from York Factory to Red River, but not forwarded to the mission at the usual time by the H. B. Co.'s brigade.

It has sometimes happened that this is not convenient or perhaps quite impossible; it is natural to suppose that when, from missing a season or from other causes, the supplies for the service of the different posts of the company are in arrears, and the brigade of boats can take only a certain quantity of goods, those for the purposes of the trade will first receive attention. It has happened two or three times that one year's supplies for the whole settlement of many very important necessities have been unavoidably left at York Factory, causing no little inconvenience and trouble to the settlers as well as the missionaries. In the settlements at Red River their wants can be in part supplied from Fort Garry, but at the missionary out-posts such relief cannot be looked for.

Now that communication may be said to be established between Fort Garry and St. Paul by steam-boat and stage coach, there will always be an abundant supply of necessities at the settlements, which was not the case when the chief means of communication with the outer world lay through York Factory. Opportunities may now be embraced for supplying distant out-posts, which did not exist before Fort Abercrombie or the mouth of the Shaysenne was connected by steam with Fort Garry.

In the afternoon of this day a snow storm commenced, which continued all night, and covered the ground with nine inches of snow. The thermometer was at the freezing point, but Mr. Mackenzie stated his conviction that the "Indian summer" not having yet occurred, the snow would soon disappear, and we might have fine weather for 10 days or a fortnight; a prediction borne out by the rapid disappearance of the snow on the following day, and the occurrence of beautiful weather, with frosty nights, to near the end of October.

On Monday, the 18th, snow birds were flying about the post in large flocks; ducks wending their way to the south, and all appearances and signs of approaching winter rapidly following one another.

Tuesday and Wednesday were occupied in writing letters and making up my journal. On Thursday, the 21st, the boat not having arrived, I proceeded to examine the surrounding country. The day was warm and fine, with much smoke from the south-west, coming no doubt from the burning prairies.

Manitobah House is very prettily situated near the Narrows of the lake. Immediately before it is a cluster of low islands, on which some fine ash-leaved maple and elm grow; they are the favourite camping grounds of the Indians who hunt and fish in the country about Lake Manitobah. The land in the rear of the house is stony but good, and there is an area of many thousand acres in extent, well adapted for a settlement. The timber, consisting almost altogether of aspen on the main land, is of fair dimensions, trees from 12 inches to 15 inches in diameter being common. Near the Post, but on the opposite side of the lake, there is a considerable quantity of balsam, spruce, and tamarac. There are no rock exposures visible near the Post, but in making an excavation for a cellar under the new house the workmen came upon limestone rock four feet below the surface. It was apparently horizontal, but in the fragments procured no organic remains were visible; its lithological aspect was similar to the rock on Manitobah Island, to be hereafter described. When the surface of the exposed rock was cleaned with a bucket or two of water well-preserved ice grooves were visible. Their direction was N. 10° W.—S. 10° E.

I visited the house of a freeman named John Campbell a few hundred yards south of the Post, and found there two comfortable log shanties, a potato field, two or three haystacks, and some cattle. Campbell's son informed me that it was much easier to live here than at the Settlements. Some of his cattle were permitted to remain in the woods and swamps all winter, but they became very poor towards spring. White-fish are abundant. The fishing season having already begun, Campbell had caught 500 white-fish, but he wanted 4,000 for his winter supply. As soon as the fish are caught in the gill nets and brought to shore a slit is made above the tail, through which a pointed stick is pushed.

Ten fish are placed on each stick, and the sticks are staged in the open air, about nine feet from the ground, beyond the reach of dogs. No curing, cleaning, or any preservative process is employed; the dry air and frost preserve them until they are needed. The importance of the white-fish in this region may be imagined when it is known that not only does it form the chief food of the Indians in the lake region for a great portion of the year, but *three white-fish* per diem constitute the sole daily allowance of the half-breeds attached to this Post; absolutely nothing more. Flour, tea, sugar, &c., are luxuries, which, if they wish to indulge in, must be purchased at high prices. Nevertheless they are healthy, happy, and, according to their notions, comfortable.

The white-fish I saw staged at Campbell's might average three to four pounds each. They are considered to be superior to those caught in Lake Winnipeg. This important source of food in these regions is well named "at-ik-um-aig," or "the rein-deer of the water," by the Ojibways. It forms a principal article of diet during a large portion of the year, not only of the Indians, but also of the settlers at Red River. The price the frozen fish fetch in the Settlement is five for a shilling, or 100 for a pound sterling. During our winter journey to Canada we purchased them at Red Lake, in Minnesota State, at the rate of \$6 (1*l.* 9*s.*) per hundred, to feed the dogs; each dog was allowed one white-fish, and a morsel of pemican as long as the pemican lasted.

Indian summer began to-day, October 21st. The weather is warm, smoky, but very delightful. No boat being yet within sight, I visited the islands opposite Manitobah House, the marshes at the mouth of Ebb and Flow Lake, and the country in the rear of the Post. Its extraordinary flatness is shown by the great expanse of marsh about the islands and along the coast north of the Hudson's Bay Company's Post. The level of the lake was three feet below high-water mark, and about two feet above the lowest point to which it has been known to fall for many years. The boat not arriving on the evening of the 22nd, I determined to take a small supply of provisions and go with Whiteway the half-breed, who had accompanied me from Dauphin Lake, as far as Manitobah Island, about 12 miles in a direction due north, and there await its arrival. This part of Lake Manitobah is not more than from three to four miles across, studded with low islands, and on the east side the coast is indented with deep bays. The strait is shallow, 21 feet of water close to the Narrows being the greatest depth recorded.

Manitobah Island, from which the lake derives its name, is about 600 yards long and 200 yards broad; on its north side there is a perpendicular limestone cliff 15 feet high; a few yards from its edge a well-defined ancient lake beach crosses the island, resembling in most particulars the Ridge Pitching track or the Big Ridge of the Assiniboine. The part that remains in a good state of preservation is not more than 150 yards long, the breadth of the Island being here about 220 yards. From this ancient beach the land slopes gradually in a southerly direction to the present beach, with its fringe of rushes at the south extremity of the Island. The timber consists of oak and birch; many of the first-named tree have been cut by the people of Fairford and Manitobah House.

The native carpenter employed to build Mr. Mackenzie's new residence accompanied us to the Island, and although very anxious to make the traverse across the lake after passing the Narrows, he remained for a few hours to cut a couple of oak logs, which he proposed to take with him to Fairford, to mend the old freighter's boat which had formed his pay for six weeks' labour. He embraced this opportunity on account of the difficulty of procuring oak timber near the Mission. Although oak was seen several times on the shores of Lake Manitobah, north of the Narrows, yet nowhere was it found of such serviceable thickness (15 inches) and length as on Manitobah Island. In the rear of the marshes which border the lake it is known to exist in small quantities.

Among the Devonian fossils procured on the island were *Atrypa reticularis*, *Atrypa aspera*, two species of *Chonetes*, a small *Productus*, an *Orthoceras*, and fragments of a large fish. (Mr. Billings.)

I remained on this island with Whiteway for three days; we shot a mink, a few duck, and saw a red fox, but although the island was so small, we found it impossible to kill him. Indians appeared occasionally in their canoes on the north-east coast of the lake, but although they heard our guns and fired in return, yet they would not venture near us. They have all a great aversion to caves and overhanging rocks, conceiving that such places are the abode of fairies or Manitou. The origin of this superstition in relation to Manitobah Island is due to the sounds produced by the waves as they beat upon the beach at the foot of the low cliffs at its northern extremity. During the night-time, when a gentle breeze is blowing from the north, the various sounds heard on the island are quite sufficient to strike awe into the minds of superstitious Indians. These sounds frequently resemble the ringing of distant church bells; so close, indeed, is this resemblance, that several times during the night I woke with the impression that I was listening to chimes. When the breeze subsided, and the waves played gently on the beach, a low wailing sound would be heard from our camping place, about 300 yards from the cliffs where the noise was produced. At night it was peculiarly impressive, and as we lay on the moss-covered rock, it was very easy to comprehend the objection which uneducated Indians, naturally of a fanciful and superstitious turn of mind, should have to land or remain on this "fairy" island.

On the night of Monday, the 25th October, we built as usual a large fire on the beach to serve as a beacon light to Mr. Fleming, and at nine lay down to sleep. Whiteway was telling me about the adventure of Sho-Shons (Long-ears), whose tent was within a few miles of us, and who was tossed by a buffalo bull during the past summer, when at 10 p.m. three shots were heard, apparently about three miles north of the island. We sprang up and replied with three shots, and proceeded at once to supply the beacon fire with dry wood. Whiteway put his ear to the water's edge, and after a short pause declared that he heard oars. After a few minutes we fired three more shots, and waited the result; in half an hour the boat loomed through the gloom, and before eleven o'clock Mr. Fleming and the crew were on Manitobah Island.



They had been detained by contrary winds, but had plenty of sport, killing prairie hen,\* duck, and plover in the upper part of the lake, near Crane Bay. At sunset Mr. Fleming touched a low point a few miles north-east of our island, where a few Indians were encamped; they told him that they had repeatedly heard shots from the Narrows, but did not care to know who had fired them in that quarter. A quiet admission that the terrors of Manitobah Island were sufficient to check the curiosity even of an Ojibway Indian.

It was past noon on the morning of the 26th when we reached Manitobah House; we remained there for an hour to partake of the hospitality of Mr. and Mrs. Mackenzie, and procure a supply of white-fish and potatoes. In the afternoon we pulled towards McKay's Point, passed between Sugar Island and Birch Island, both low and marshy areas, and camped at sunset on a circular sandy beach enclosing an extensive marsh, in which duck still remained in considerable numbers. The lake near the coast is shallow, the greatest depth recorded being 13 feet.

The whole of the coast as far as Swan Creek is very low, and bordered by beaches enclosing marshes. Here and there wooded points, 10 to 12 feet above the lake level, separate the marshes from one another; on one of these points we observed some very fine elm, but the prevailing timber consists of aspen. A mission was established some years since at Elm Point by the Reverend Mr. Cowley, but abandoned soon after. An attempt was made to open a cart track from this mission to the prairies near Oak Point, but it was thought that the Indians who professed to guide Mr. Cowley through the driest part of the country, took him through the most swampy portion. The Indians now say that dry ridges exist, with few intervening marshes, over and through which a cart track could be established without difficulty; but it is evident that the character of the country on this part of Lake Manitobah is not fitted for farming purposes. Isolated areas like Elm Point are, doubtless, to be found, but not sufficiently extensive to give to this region any value in an agricultural point of view.

We met an Indian in a canoe near Elm Point, and Whiteway, at my request, told him we were starving. I wished to ascertain the truth of the statement so often made respecting the liberality of these Indians in cases of necessity. The answer was a happy one; approaching our boat in his canoe the Indian said, "Look, if you see anything to eat, take it." In his canoe were sixty fine white-fish and a few pike. I gave him some potatoes, tobacco, and tea, and accepted a dozen white fish, which he pressed us to take.

The shore continues low as far as Sandy Point; it is bounded by beaches fringed with fine aspen forests in the rear of marshes filled with rushes, which occupy part of every sheltered cove and bay open to the lake. We camped at Monkman's Point, where one of the family has a fishing station. They were catching their winter's supply of white fish. Monkman† pointed out a marsh in the rear of our camp which he said was once dry ground and afforded splendid pasturage for horses. It is separated from the lake by a gravelly beach. This probably occurred during a period of low-water. A fall in the level of the lake to the extent of two feet would not only drain and dry this marsh, but many thousand acres of marshy tracts formed under similar circumstances, and at the same period. Mr. Mackenzie, of Manitobah House, told me that former residents at that post had seen the lake for a long period of time two feet lower than at present. In fact, before the floods of 1852, the lake was at its lowest level, and the swamps and marshes fringing its low north-eastern coast were then dry areas covered with rank grass. In the course of a few years this will again take place, and for a long period, perhaps, settlers may enjoy fine pasture lands, destined again to revert to an intermittent condition of swamp or marsh. Monkman informed me that many years since the Hudson's Bay Company had a breeding establishment near this point; and he remembered the time when 120 horses were pastured in the neighbourhood of Swan Creek, about 12 miles from Oak Point.

On the 28th we passed through an immense expanse of reeds called Marshy Point, threading our way through an intricate channel in which large numbers of duck still lingered. About one o'clock we arrived at Oak Point, where we found John Monkman and a number of settlers from Red River catching their winter supply of white-fish in gill nets.

Lake Manitobah is 120 miles long by 24 broad in its widest part, from headland to headland; but if estimated from Oak Point to the mouth of White Mud River on the west side, the breadth does not fall far short of 30 miles. The area of the lake is about 1,900 square miles, and its approximate altitude above the sea 670 feet, or 42 feet above Lake Winnipeg. An inspection of the map will show that in the parts sounded, which were sometimes 12 to 15 miles broad, the depth never exceeded 23 feet; this occurred half way between Cherry Island and Sandy Point in the upper portion of the lake. In the two traverses between Manitobah Island and Cherry Island not more than 21 feet was recorded, while within four miles of the coast, in the southern or larger portion of the lake, 18 feet was the greatest depth found. The soundings are shown on the map.

The effects of winds on the large surfaces of water exposed by the great lakes of the Winnipeg Basin is very remarkably seen at the Narrows, near Manitobah Island, the Dog's Head (Lake Winnipeg), Water-hen River, and the mouths of the Winnipeg and Red Rivers. The currents produced by the pressure of the wind changing the level of the lake has probably exercised an important influence in connecting different parts of the same lake basins.

At the Narrows, Lake Manitobah, a northerly wind will cause a strong current to flow through the straits into the lower or southern half of the lake; while a south wind produces a corresponding effect in the northern portion, and perceptibly increases the volume of water in the Little Saskatchewan. At the Dog's Head the current sometimes approaches the force of a rapid when the wind blows from the

\* The Prairie Hen or Pinnated Grouse, *Tetrao Cupido*, is not often found so far north as lat. 52° in the wooded country.

† The brother of John Monkman of Oak Point—a celebrated character at Selkirk Settlement—more will be said of this individual in a future chapter.

north; the great depth of Lake Winnipeg at this point, which I was assured by half-breeds and Indians who fish there during the winter exceeds 120 feet, is doubtless the result.

At first sight it appears strange that the limestone cliffs should not have been gradually broken away, and the communication between the upper and lower portion of Lake Winnipeg enlarged. But running water exercises comparatively little effect in excavating a deep channel through a rocky barrier, or in widening a watercourse; ice, beyond all question, is the main instrument in abrading, denuding, and excavating. At the Dog's Head the ice has little force, on account of the proximity of islands, either when acting with a thrust or bearing away masses of rock frozen to its substance. By far the greater portion of the ice formed on this part of the coast is so protected by the islands as to melt before it can be moved by winds with its rocky burdens to distant parts of the lake.

At Manitobah House I observed the water rise fully 18 inches before a storm. Canoes left in calm weather on a beach high and dry are not unfrequently washed away when a strong south or north wind sets in; and it often happens that even before the approach of a change in the direction of the wind is indicated by clouds, the water of the lakes show by rising the operation of a distant pressure which has not yet manifested itself at the point of observation. The Indians and half-breeds, in the fall of the year, when winds are variable, frequently notice the mouths of streams or rude registers, such as a stone set up by themselves on the beach, to see if any indications are afforded of a change in the wind, not appreciable by any other means.

In 1823, Mr. Keating, in his narrative of Major Long's Expedition to the sources of St. Peter's River, described the effects of winds on the waters of Lake Winnipeg taking place at the mouth of the Winnipeg River as follows: "A question which has been much discussed by travellers, is that of the supposed periodical rises in the lakes. We do not propose to take part in the discussion at present, but we may state that we observed at Fort Alexander an appearance such as has probably more than once been mistaken for the effect of a tide.

"On our arrival we pitched our tents upon a sort of wharf projecting into the river, and elevated about two feet above the level of the water. In the afternoon a very high wind blew from the lake and accumulated the waters in the bay, so as to cause them to overflow the wharf and oblige us to remove our tents. The next morning the waters had subsided to their former level."

The splendid prairies bordering on the southern shores of Lake Manitobah may be said to begin at Oak Point. Their boundary is an imaginary line extending south-easterly towards the Indian settlement on Red River on the one hand, and to the old lake ridge, where it is cut by White Mud River, on the other, a distance in an air line of 110 miles. North of this line the country is in general marshy, full of reticulating lakes and low aspen covered ridges.

The settlement at Oak Point contains about a dozen houses; their appearance does not give a stranger a favourable impression of the industry and energy of their occupants. No advantage appears to be taken of the splendid country by which they are surrounded, and with the exception of John Monkman, who at times is a marvel of energy injudiciously directed, they do not seem to have made any progress in improving their dwellings or in enclosing a farm since they first established themselves at Lake Manitobah. About 10 miles in a south-westerly direction from Oak Point a number of French half-breeds have formed a settlement on the shores of the lake. They enjoy the advantage of having a resident missionary (R. C.) among them.

On the 29th we made preparations for a journey on horseback to the Settlements, striking diagonally across the prairie region just described. The country in the neighbourhood of Oak Point is very attractive; its general level is about 10 feet above the lake; it resembles in every respect the region about White Mud River. Our road, for a few miles, lay across a very rich and fertile tract, until an almost imperceptible ascent introduced us to a low gravelly ridge upon which aspen woods grow in narrow strips; the forest preserving a uniform outline as far as the eye could reach, in a direction corresponding to the present form of Lake Manitobah, indicated without glancing at the soil, the direction and extent of the subaqueous ridges, afterwards a low coast line, which were formed over the floor of Lake Manitobah at a higher level. Succeeding this low flat ridge is a broad plateau slightly undulating and studded with straggling clumps of young poplar and small oak, with willows in the shallow depressions. The soil becomes rich in vegetable mould again as we approach Shoal Lake, an extensive sheet of water, shallow, reedy, connected with numerous lakes lying to the north, and a favourite haunt of aquatic birds.

The south shore of Shoal Lake is particularly attractive. Ridges supporting heavy oak fringe the shore, beautiful meadows, bordered with aspen and oak woods, reveal themselves in making a short traverse to the south. Although the shores of the lake are marshy, yet the oak ridges, some few hundred yards south of it, are high and dry. For a grazing establishment on the largest scale, Shoal Lake is admirably fitted. Wild hay in any desirable quantity exists around its marshy shores, and in the beautiful prairies lying south of it timber of excellent quality for building purposes and fuel may be procured in abundance; in the spring and autumn the lake is covered with wild fowl of every variety. Shoal Lake is a favourite sporting ground of the gentlemen of Fort Garry and the half-breeds of the Settlement. It is on the main road to Lake Manitobah, and is probably destined to become a place of some note as a grazing station in the course of time.

On the 30th October I set out with Whiteway in advance of the carts in the hope of being able to reach the Settlements before nightfall. We passed through an excellent prairie country studded with aspen groves, and occasionally relieved by a broad shallow ridge, probably of subaqueous origin, like those already described. The Big Ridge of the Assiniboine is not well defined where we descended it, about eight miles west of Stony Mountain. It appears to be divided into two portions, part expanding into an undulating tract of country a few hundred yards broad, the other preserving the outline and



character of the Big Ridge, but named in consequence of its diminished altitude the Little Ridge. The level country at the base of either is everywhere beautiful, fertile, and admirably adapted for settlement. We descended the Little Ridge, a step of the Big Ridge, at about four in the afternoon, and in the distance could see the twin steeples of St. Boniface with their tinned roofs glancing brilliantly in the south-east about 15 miles off. We then passed through the magnificent prairies lying between Stony Mountain and Red River, reaching the edge of the Big Swamp just before sunset, and arrived at our temporary quarters in the Settlement half an hour after dark.

It has been stated in a preceding chapter that the Ridges of Red River and the Assinniboine mark the limits of land of the first quality in these valleys, north of the 49th parallel and east of the Sandy Hills, near Prairie Portage. But it must not be supposed that the country between Oak Point and Stony Mountain is of greatly inferior quality; in many parts no difference in the rank luxuriance of the grass on these prairies and those south of the Big Ridge could be distinguished, but the area of light or gravelly soil, covered with short stunted grass is far greater, and thus diminishes the available extent of soil adapted for agriculture. It is doubtful whether this drawback is not counterbalanced by the proximity of the country north of the Big Ridge to the forest-covered tract between the great lakes, and to the haunts of vast numbers of wild fowl which breed on the borders of the small sheets of water so numerous in this region. On the map this tract, south of the probable limit of the forest, has been recorded as a "vast level prairie adapted for agriculture," the groves and strips of aspen and oak only serving to break a vast level expanse into a series of very attractive plains, apparently bounded by forests, which are found as the traveller penetrates them to be but narrow belts separating one beautiful prairie from another.

TABLE showing the LEADING DIMENSIONS and APPROXIMATE HEIGHT above the SEA of the LAKES in the GREAT BASIN of LAKE WINNIPEG.

Lake Winnipeg.					St. Martin Lake.				
Area	-	-	-	8,500 sq. miles.	Area	-	-	-	316 sq. miles.
Length	-	-	-	280 st. „	Length	-	-	-	30 st. „
Greatest breadth	-	-	-	57 st. „	Greatest breadth	-	-	-	16 st. „
Length of coast line	-	-	-	930 st. „	Height above the sea	-	-	-	655 feet.
Approximate height above the sea	-	-	-	628 feet.	Cedar Lake.				
Lake Manitobah.					Area	-	-	-	312 sq. miles.
Area	-	-	-	1,900 sq. miles.	Length	-	-	-	30 st. „
Length	-	-	-	120 st. „	Greatest breadth	-	-	-	25 st. „
Greatest breadth	-	-	-	24 st. „	Height above the sea	-	-	-	668 feet.
Height above the sea	-	-	-	670 feet.	Dauphin Lake.				
Lake Winnipegosis.					Area	-	-	-	170 sq. miles.
Area	-	-	-	1,936 sq. miles.	Length	-	-	-	21 st. „
Length	-	-	-	120 st. „	Greatest breadth	-	-	-	12 st. „
Greatest breadth	-	-	-	27 st. „	Height above the sea	-	-	-	700 feet.
Height above the sea	-	-	-	692 feet.	Total water area in the Great Basin of Lake Winnipeg - - 13,134 sq. miles				

TABLE showing the AREAS and ELEVATION above the SEA of the GREAT CANADIAN LAKES.

Names of Lakes.					Area in Square Miles.	Elevation above the Sea.
Lake Superior	-	-	-	-	32,000	600
Green Bay	-	-	-	-	2,000	578
Lake Michigan	-	-	-	-	22,400	578
Lake Huron	-	-	-	-	19,200	578
Lake St. Clair	-	-	-	-	360	570
Lake Erie	-	-	-	-	9,600	565
Lake Ontario	-	-	-	-	6,300	232
Total area					91,860	

## CHAPTER XII.

## INDIAN WEALTH.—THE BUFFALO.—THE HORSE AND THE DOG.

The Bison or Buffalo—Its value—Two kinds of Buffalo reported to exist by Half-breeds—The plain Buffalo and the Wood Buffalo—Characters of—Former range of the Buffalo—Existed on the Atlantic Coast—Throughout the United States Territory, not including all the New England States—Modern range of—The Red River bands—The Saskatchewan bands—Wintering quarters of the North-western bands of Buffalo—Summer ranges—Systematic Migration of—Buffalo Hunt—Census of Red River Half-breed Hunt—Blind Buffalo—Crossing of Buffalo with Domesticated Cattle—Character of Mixed Breeds—The Horse—Training of Horses—Docility of—Illustrations—Attachment of Indians to their Horses—Hoppings—Smokes—The Dog—Its uses—The Midnight Howl—Dog Feasts—Dogs at the H. B. Posts—Voracity of—Cross with the Wolf—Sacrifice of Dogs.

The bison or buffalo, the horse, and the dog are to Prairie Indians what domesticated animals and the productions of the farm and the forest are to civilized races. During the greater part of the year the Prairie Indians follow the buffalo, and not only subsist upon the flesh of this animal, but from its skin and sinews they make their tents, clothing, saddles, bowstrings, and dog harness. The hide cut into strips serves them for cordage, the sinews split into threads for twine. The dried dung is often their only fuel for weeks together in the treeless plains between the Assiniboine and the Grand Coteau, and on the South Branch of the Saskatchewan. Dried meat, pemican, marrow, soft fat, sinews, dressed skins and robes, all from the buffalo, form their articles of commerce, in exchange for which they demand tea, which is now becoming a most coveted luxury, tobacco, powder, and shot, and, if possible, rum. It may truly be said that they exist on the buffalo, and their knowledge of the habits of this animal is consequently essential to their existence.

That there are two kinds of buffalo appears to be still a matter of doubt; they are stated to be the prairie buffalo and the buffalo of the woods. Many old hunters with whom I have conversed on this subject, aver that the wood buffalo is a distinct species, and although they are not able to offer scientific proofs, yet the difference in size, colour, hair, and horns are enumerated as the evidence upon which they base their statement. Men from their youth familiar with these animals in the Great Plains, and the varieties which are frequently met with in large herds, still cling to this opinion. The plain buffalo are not always of the dark and rich bright brown which forms their characteristic colour. They are frequently seen from white to almost black. A grey buffalo is not at all uncommon. Buffalo emasculated by wolves, the half-breeds say, are often found in the prairies; they grow to an immense size. The skin of a buffalo ox is recognized by the shortness of the wool and by its large dimensions. The skin of the so-called wood buffalo, of which I saw two at Red River, is much larger than that of the common animal, the hair is very short, mane or hair about the neck short and soft, and altogether destitute of curl, which is the common feature in the hair or wool of the prairie animal.

The wood buffalo is said to be very scarce, and only found north of the Saskatchewan, and on the flanks of the Rocky Mountains. It never ventures into the open plains. The prairie buffalo, on the contrary, generally avoids the woods, and keeps to the open country, but in winter they are frequently found in the woods of the Little Souris, the Saskatchewan, the Touchwood Hills, and the aspen groves on the Qu'Appelle. There is no doubt that formerly the prairie buffalo ranged through open woods almost as much as he now does through the prairies.

Great Slave Lake is the northern limit of the buffalo, and the country between that large body of water and the Saskatchewan is partially wooded. The buffalo are now found in considerable numbers on the east flank of the Rocky Mountains. The former limits of the wanderings of these animals are carefully recorded in the narrative of Major Long's Expedition, from which the following extracts are taken: "The buffalo was formerly found throughout the whole territory of the United States, with the exception of that part which lies east of Hudson River and Lake Champlain, and of narrow strips of coast on the Atlantic and the Gulf of Mexico. These were swampy, and had probably low thick woods. That it did not exist on the Atlantic coast is rendered probable from the circumstance that all the early writers whom Mr. Colhoun has consulted on the subject, and they are numerous, do not mention them as existing there, but further back. There can be no doubt that the animal approached the Gulf of Mexico, near the Bay of St. Bernard, for Alvar Nunez, about the year 1535, saw them not far from the coast, and Jontel, 150 years afterwards saw them at the Bay of St. Bernard. It is probable that this bay is the lowest point of latitude at which this animal has been found east of the Rocky Mountains. There can be no doubt of their existence west of these mountains, though Father Venegas does not include them among the animals of California, and although they were not seen west of the mountains by Lewis and Clarke, nor mentioned by Harmon or Mackenzie as existing in New Caledonia, a country of immense extent, which is included between the Pacific Ocean, the Rocky Mountains, the territory of the United States, and the Russian possessions on the north-west coast of America. Yet its existence at present on the Columbia appears to be well ascertained, and we are told that there is a tradition among the natives, that shortly before the visit of our enterprising explorers, destructive fires had raged over the prairies, and driven the buffalo east of the mountains. At present it is scarcely seen east of the Mississippi, and south of the St. Lawrence. Governor Cass' party found, in 1819, buffaloes on the east side of the Mississippi, above the falls of St. Anthony. Every year this animal's roving are restricted. In 1822 the limit of its wanderings down the St. Peter was Great Swan Lake (near



"Camp Crescent.) In 1823 the gentlemen of the Columbia Fur Company were obliged to travel five days in the north-west direction from Lake Travers before they fell in with the game, but they then succeeded in killing sixty animals. There can be no doubt but this constant subtraction from his roamings must affect his numbers; certainly more than the practice of killing only the cows and leaving the bulls, a custom which has probably prevailed among the Indians for a long while, and which we cannot therefore consider as the source of the great modern diminution in their numbers."

The ranges of the buffalo in the north-western prairies are still maintained with great exactness, and old hunters, if the plains have not been burnt, can generally tell the direction in which herds will be found at certain seasons of the year. If the plains have been extensively burned in the autumn, the search for the main herds during the following spring must depend on the course the fires have taken.

Red River hunters recognize two grand divisions of buffalo, those of the Grand Coteau and Red River, and those of the Saskatchewan. Other ranges of immense herds exist further to the south, as far as Texas and Mexico. The north-western buffalo ranges are as follows, and first with respect to the Red River range: the animals winter on the Little Souris, and south-easterly towards and beyond Devil's Lake, and thence on to Red River and the Shaysenne. Here too they are found in the spring. Their course then lies west towards the Grand Coteau de Missouri, until the month of June, when they come north, and revisit the Little Souris from the west, turning round the west flank of Turtle Mountain to Devil's Lake, and by the main river (Red River) to the Shaysenne again. In the memory of many Red River hunters, the buffalo used to visit the prairies of the Assinniboiné as far north as Lake Manitobah, where, in fact, their skulls and bones are now to be seen; their skulls are also seen on the east side of the Red River of the North, in Minnesota, but the living animal is very rarely to be met with. A few years ago they were accustomed to pass on the east side of Turtle Mountain through the Blue Hills of the Souris, but of late years their wanderings in this direction have ceased; experience teaching them that their enemies, the half-breeds, have approached too near their haunts in that direction.

The country about the west side of Turtle Mountain in June last was scored with their tracks at one of their crossing places on the Little Souris, as if deep parallel ruts had been artificially cut down the hill sides. These ruts, often one foot deep, and sixteen inches broad, would converge from the prairie for many miles to a favourite crossing or drinking place; and they are often seen in regions in which the buffalo is no longer a visitor.

The great western herds winter between the south and the north branches of the Saskatchewan, and south of the Touchwood Hills; they cross the south branch in June and July, visit the prairies on the south side of the Touchwood Hill range, and cross the Qu'Appelle valley any where between the elbow of the South Branch and a few miles west of Fort Ellice on the Assinniboiné. They then strike, for the Grand Coteau de Missouri, and their eastern flank often approaches the Red River herds coming north from the Grand Coteau. They then proceed across the Missouri up the Yellow Stone, and return to the Saskatchewan as winter approaches, by the flanks of the Rocky Mountains. We saw many small herds belonging to the western bands cross the Qu'Appelle Valley, and proceed in single file towards the Grand Coteau in July last. The eastern bands which we had expected to find on the Little Souris were on the main river (Red River is so termed by the half-breeds hunting in this quarter). They had proceeded early thither, far to the south of their usual track, in consequence of the devastating fires which swept the plains from the Rocky Mountains to Red River in the autumn of 1857. We met bulls all moving south, when approaching Fort Ellice; they had come from their winter quarters, near the Touchwood Hill range. As a general rule the Saskatchewan bands of buffalo go north during the autumn, and south during the summer. The Little Souris and main river bands (Red River) go north-west in summer and south-east in autumn. It is almost needless to remark again that fires interfere with this systematic migration; but there are no other impediments which will divert the buffalo from their course. The half-breeds state that no slaughter by large parties of hunters or Indians can turn large herds from the general direction they have taken when on the march; want of food is alone able to make them deviate from the course they have taken. The approach of numerous herds can be recognized by a low, rumbling sound they occasion—best perceived by applying the ear to a badger hole—fully twenty miles before they arrive, if the weather be calm. During the rutting season they can be heard bellowing for a great distance on a still night. When we arrived at the Sandy Hills, on the South Branch, the Crees, on being asked if the buffalo were numerous near at hand, answered, "Listen to-night, and you will hear them."

In my Report for 1857 I introduced a description of the buffalo hunters of Red River in the field, and described the arrangements and regulations of the hunt from information given me by Mr. G. Flett.\* The start is usually made from the Settlements about the 15th of June for the summer hunt, the hunters remaining in the prairie until the 20th August or 1st of September. One division (the White Horse Plain) goes by the Assinniboiné River to the rapids crossing, and then proceed in a south-westerly direction. The other, or Red River division, pass on to Pembina, and then take a southerly direction. The two divisions sometimes meet, but not intentionally. In Mr. Flett's division in 1849 there were, according to a census taken near the Chiefs' Mountain, not far from the Shaysenne River, Dacotah Territory, 603 carts, 700 half-breeds, 200 Indians, 600 horses, 200 oxen, 400 dogs, and 1 cat.

Mr. Ross† gives the following census of the number of carts assembled in camp for the buffalo hunt at five different periods:—

In 1820.	Number of carts assembled for the first trip	-	-	-	540
In 1825.	"	"	"	-	680
In 1830.	"	"	"	-	820
In 1835.	"	"	"	-	970
In 1840.	"	"	"	-	1,210

The mode in which the Crees impound buffalo is described in Chapter III., page 64.

\* See page 356, Red River Report for 1857.

† The Red River Settlement, its rise, progress, and present state. London, 1856.

Blind buffalo are frequently found accompanying herds, and sometimes they are met with alone. Their eyes have been destroyed by prairie fires; but their quickened sense of hearing and smell, and their increased alertness enable them to guard against danger, and makes it more difficult to approach them in quiet weather than those possessing sight. The hunters think that blind buffalo frequently give the alarm when they are stealthily approaching a herd in an undulating country. When galloping over stony ground blind buffalo frequently fall, but when quietly feeding they avoid the stones and boulders with wonderful skill. The domestication of the buffalo is a subject of much interest to the future population of Red River, and the following information on that subject may be implicitly relied on.

Humboldt in his "Aspects of Nature" (page 66) says that Albert Gallatin, who, before he appeared in Europe as a distinguished diplomatist, had obtained by personal inspection great knowledge of the uncultivated part of the United States, assures us that "the mixed breed was quite common fifty years ago in some of the north-western counties of Virginia; and the cows, the issue of that mixture, propagated like all others." "The favourite food of the buffalo is *Tripsacum dactyloides* (buffalo grass), and an undescribed species of clover nearly allied to *Trifolium repens*, and designated by Barton as *Trifolium bisonicum*. According to the statement of Gomara, there was still living in the north-west of Mexico, in latitude 40°, an Indian tribe whose principal riches consisted in herds of tame bisons or buffalo. But notwithstanding the possibility of taming the bison, notwithstanding the quantity of milk it yields, and notwithstanding the herds of lamas in the Cordilleras of Peru, no pastoral life or pastoral people were found when America was discovered, and there is no historical evidence of this intermediate stage in the life of nations ever having existed there."\*

In a description of domesticated herds of buffalo, and the results of crossing with the common cow, from the Patent Office Reports, it is stated that the mixed breeds are of various colours; striped with black on a grey ground, like the zebra; some others brindled red; some pure red, with white faces; and others red, without any markings of white. The mixed bloods have not only produced from the tame and buffalo bull, but it is known that the half-bloods reproduce, viz., those that were the product of the common cow and wild buffalo bull. At the first settlement of the country, cows that were considered the best for milking, were the half-blood down to the quarter, and even eighth of the buffalo blood. But the writer's experiments have not satisfied him that the half buffalo bull will produce again. That the half breed heifer will be productive from either race, he has tested beyond the possibility of doubt.

"The domesticated buffalo retains the same haughty bearing that distinguishes him in his natural state. He will, however, feed or fatten on whatever suits the tame cow, and requires about the same amount of food. I have never milked either the full-blood or mixed breed, but have no doubt they might be made good milkers, although their bags or udders are less than those of the common cow; yet, from the strength of the calf, the dam must yield as much, or even more milk, than the common cow."†

Next to the buffalo the horse is the mainstay of the prairie Indians. Good horses are not very common among the Crees; they are, however, very intelligent and well trained. A good buffalo runner is invaluable to them, for although it does not require a fast horse to catch a bull, the cows, possessing greater speed, often outstrip them. A good Indian horse possesses some excellent characteristics, the result of training, which it may be interesting to enumerate, for the purpose of exhibiting how admirably this animal serves his rude and savage masters. When galloping after a buffalo, an Indian horse watches the animal as intently as his rider, always swerving when he observes the buffalo's tail begin to vibrate, and breaking into short gallop at his utmost speed when he sees the tail erect, a sure indication of an immediate charge. The rider may with safety entrust himself to his horse if mounted on a trained buffalo runner; he will be carried within three yards of the flanks of the animal, and safely withdrawn when danger is threatened. If the horse stumbles and throws his rider, the sagacious animal stops instantly and waits for him to mount again. A happy instance happened to myself when riding a fiery grey mare an Ojibway Indian lent me to gallop from his tent to Manitobah House, a distance of ten miles. "She is my favourite buffalo runner," said the Indian, "and will not need the thong." She ran away with me, however, as soon as we reached a grassy opening about a mile across, and in the midst of her gallop the belly band broke, and the little Indian saddle slipping round, I was thrown at once on the soft turf. The mare stopped immediately, turned round and stood by my side, waiting until I had risen and adjusted the saddle. As soon as I mounted she started off again, as if my sudden and unexpected descent had been intentional. At another time, when driving a small cariole over the frozen waters of Red River last winter, the horse, an Indian one, not being roughshod, slipped and fell, but without an effort to rise remained perfectly quiet until I had loosened the harness, when he scrambled up, gained a rough portion of ice, and quietly waited to be harnessed afresh.

Indian horses are excellent watchers by night; our half breeds were accustomed to note with care the aspect of the horses before retiring to rest; if they showed the least signs of uneasiness, such as staring about them instead of feeding quietly, or, when feeding with the "bite" in their mouth, stopping to listen, or snuffing the air, or approaching the fires when the flies were not troublesome, they would look for the cause, and sometimes set watchers. When during the night, however dark, the horses suddenly approached the carts, the half-breed would go to them, caress them, and watch the direction in which they fed or looked, knowing that their heads would be turned towards the danger, whether of Indians, or bears, or wolves.

One more instance will suffice to show the docility and training of Indian horses. I was riding a small horse which we had procured from the Crees on the Qu'Appelle, in company with a black-foot half-breed, some distance before the carts, in the valley of Long Creek.‡ As we ascended a small hill we saw a bear 250 yards before us. My companion could speak but few words of English, so with signs he motioned me to dismount, and, having satisfied himself that the horses saw the bear, he led

\* See Red River Report, 1857, Appendix.

‡ Long Creek flows into the Main Saskatchewan, near Fort à la Corne.

† U. S. Patent Office Report.



them a few yards aside behind a clump of willows, and tying their bridles together he patted them on the neck and pointed to the bear, caressed them again, and afterwards motioned me to follow him. The horses, with pricked ears, followed with their eyes every movement of the bear, now slowly moving from us, but occasionally stopping to crop the twigs of willow. We crawled to leeward, and got within 70 yards of the bear, he then perceived us, I fired and sent a ball through his lungs. We waited to see if he would rise again. Finding that he lay struggling on his back, we approached and dispatched him; on looking round for the horses we saw them standing in the same place intently watching us. My companion called them, they came slowly up and stopped within 40 yards, eyeing the bear all the time. Finding that we approached it and handled it, they began to feed, evidently being satisfied that it was harmless.

Prairie Indians become very much attached to their horses, if they succeed in getting possession of a valuable animal. They often keep him in a tent, when in the neighbourhood of an enemy's country or among noted thieves of their own tribe. During the daytime, when the camp is well supplied with meat and the buffalo are near, they tether him in the prairie, and indolently stretching themselves at full length on the grass, patiently watch him feed—removing the stake to a fresh spot as soon as he has cropped the best portion of the area limited by his tether. At night, when it was not thought necessary to tether our horses, we always hopped them, that is, tied their fore feet together with dressed buffalo hide. Iron hoppings are in great request among half-breeds on their hunting expeditions. They can then more safely allow their horses to feed some distance from the camp, but instances have been known of Indians who have succeeded in approaching and catching a horse furnished with iron hoppings, in revenge for their disappointment at not being able to gallop away with their prize, sending an arrow through the animal or otherwise seriously injuring him. During the fly season, smokes are made every night for the horses, and if this precaution is neglected they will remind their masters of their want of care by surrounding the camp fire and pushing their nose into the smoke. It is this habit of crowding round the smoke of a fire to avoid the torment of the flies which makes Indian horses so difficult to drive from a prairie on fire. Many are burned every year on account of their being unable to comprehend the danger which threatens them. The buffalo are more wary, the smell of fire is often sufficient to drive them from pastures where they have been quietly feeding.

Next to the horse the dog is the Prairie Indian's most valuable friend. The dog is the great standby of the squaws, who have to attend to all the duties of the camp, the men employing themselves solely in hunting and fighting. The dogs drag on poles the camp furniture, the provisions, the little children, and all the valuables of the family. It is a very amusing sight to witness several hundred dogs solemnly engaged in moving a large camp. They look wistfully at passers by, and take advantage of the least want of attention on the part of their mistresses to lie down, or snarl and snap at their companions in the work. They nevertheless obey the word of command with alacrity and willingness, if not fatigued.

The midnight howl of three or four hundred dogs is an awful and appalling sound. It rises suddenly from a low prolonged whine to a deep melancholy howl, caught up again and again to the distraction of tired travellers anxious to take rest in sleep. When any great event takes place, a dog feast is proclaimed, and it is sufficiently disgusting to see the men handle and feel the unfortunate animals as if they were sheep, with a view to select the fattest, so powerful are early habits and associations in directing our feelings and tastes. Although some of the Indian dogs we saw among the Crees of the Sandy Hills are large and ferocious looking animals, we never found them vicious or inclined to attack us; they were always deterred from approaching by the sight of a stick, or a feint at picking up a stone.

Although I made many inquiries, the Indians could give no information respecting the occurrence of hydrophobia among their dogs, and the same observation, as far as I could discover, applies to the dogs so numerous at Red River, and at the different posts of the Hudson Bay Company. Large numbers of dogs are kept at the Company's Posts to haul sleds during winter; in summer time they are fed on fish at fishing stations; in the prairie, they feed upon the offal of buffalo. Dogs will go for a week without food, and yet get into condition for travelling, if well fed, in a fortnight or 18 days. At Manitobah House I saw them devour large pike alive, which were thrown to them as they were taken from the nets. Indian dogs are terrible thieves, especially those originating from a cross with the wolf. It was necessary to place out of reach or under cover every article bearing the least resemblance to leather when we were among the Crees. A careless half-breed would wake in the morning and find his harness eaten, or his whip devoured; and it sometimes happened that the long tether of buffalo hide would be found partly consumed by dogs if their appetite had not been lately appeased. The wolves have this trick also when food is scarce, especially when the tether is allowed to trail loosely from the horse's neck without being attached to a stake, thus leaving him at liberty to wander some distance from the camp during the night. The voracity of dogs during the winter when travelling is astonishing; several curious instances occurred during our homeward journey which will be found at the close of this narrative.

With Crees, Ojibways, Swampys, and Sioux, the dog is supposed to be the most acceptable sacrifice to offended deities; five dogs is the common number for this propitiatory offering. In the following chapter some instances are given of their superstition in this respect.

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## CHAPTER XIII.

INDIAN ANTIQUITIES.—SUPERSTITIONS AND CUSTOMS.—RELATIONSHIP AND KINDRED.\*—NUMBERS AND DISTRIBUTION.

Rarity of Indian Antiquities in the Valley of the Saskatchewan—Mandan Houses—Tumuli on Rainy River—Pottery—Mr. Schoolcraft's views—Intermarriage of Tribes—Country of the Ojibway—Scalp Dances—Wood and Prairie Indians—Indian punishment—Treatment of Prisoners—Conjurors—Conjuror's Song—Incantations—The happy Hunting Grounds—Influence of the Conjurors—The Badger—Haunted Holes and Caves—Sacrifices and Offerings—Treatment of Wives—Decorations—Ties of Kindred and Relationship; Illustrations—Relationship among the Iroquois.—Census of Indians—Number of Indians frequenting H. B. Co's Posts—Indians of the Saskatchewan Valley—Blackfeet Tribes—Assinniboines—Crees—Sioux or Dakotahs—Tribes of—Conjurors—Weeks—Language—Common and Sacred—Character of Language—Blackfeet Indians—Census of—Tribes of—Country Inhabited by Blackfeet.

Indian antiquities are rarely found in the Valley of the Saskatchewan south of the North Branch. The customs of wandering tribes inhabiting a prairie country are generally opposed to the rude arts which exist among barbarous races preserving a fixed abode. Not even at the fishing stations on the lakes and rivers, where different tribes have congregated at certain seasons of the year, probably for centuries, do we find any lasting memorial of individual handicraft or combined labour.

Antiquities to be ascribed to different races than those which now occupy the country exist here and there. Such are the underground houses on Rainy River,† the Mandan houses with their entrenchments on the Little Souris; but with these exceptions no other ancient monuments were seen during the exploration.

The rings of stones marking the site of Cree encampments on the Qu'Appelle‡ are of comparatively modern date, and belong, doubtless, to the ancestors of the present races now in possession of the country.

Rude pottery and arrow heads have been found at Red River settlements, about two feet below the surface of the soil. The fragments resemble those so common in many parts of Canada, and from their numbers lead to the inference that at a remote period the banks of this stream were peopled by races familiar with the art of making vessels from clay.

The underground houses at the Second Rapids in the Valley of Rainy River, one of which is 40 feet high and about 100 broad at the base, and the Mandan houses and fort on the Little Souris give wider limits to the mound builders than Mr. Schoolcraft suggests in the History, Condition, and Prospects of the Indian Tribes of the United States, part 6, page 603:

"The whole field of antiquarian research, as represented in the Mississippi Valley monuments, may be regarded as the local nucleus and highest point of development of arts and industry attained by the Red Race, after their segregation from the nomadic Toltec stocks.

"These monuments are widely scattered, but they assume the same mixed sepulchral and civic character which is apparent in those found along the Alleghany branch of the Ohio in Western New York, and in other parts of the Union. The largest mound in the Union, and those which are truncated or terraced, bear the closest resemblance to the Mexican teocalli. They occupy the most southern portions of the Mississippi Valley and Florida. They become less in size as we progress north, and *cease entirely after reaching* the latitude of Lake Pepin, on the Upper Mississippi, the head waters of the Wisconsin, and the mining excavations of Lake Superior."

One result of the active pursuit of the fur trade for upwards of a century in the valley of the Saskatchewan is seen in the blending of the different tribes by intermarriage. The Crees of the Plains and the Ojibways and Swampys of the woods, although speaking different languages, are often found hunting the buffalo in company, and not unfrequently form family connexions. The Ojibways of Lake Winnipeg may now be discovered, summer and winter, near the Grand Forks of the Saskatchewan, having emigrated 400 miles west of Red River, where they have permanently established themselves. All the Ojibways now found west of the Lake of the Woods and the east coast of Lake Winnipeg are invaders of the country. The real home of the Ojibway is the region about the south, west, and north of Lake Superior. Their habits of life have changed with the character of the country the emigrants or invaders now occupy. They are no longer dependent upon the forest for their supply of food and clothing; but many of them, on the banks of the Assinniboine, Red River, Lake Manitobah, and Dauphin Lake, and on the west flank of the Riding and Duck Mountains, possess horses, and join the half-breeds in their annual spring and fall hunts. Notwithstanding this intercourse and blending of different nations, most of the superstitions and customs peculiar to each are still maintained and practised.

Nearly one hundred years ago (1770), Mr. Hutchins, of the Hudson Bay Company's service, framed an enumeration of the tribe between Lake Winnipeg and within 100 miles of James' Bay, speaking the Ojibway tongue. The names of the tribes will be found in Sir John Richardson's Journal, page 265, American edition. The tribes enumerated have evidently derived their names, as in the present day, from their hunting and fishing stations.

It is often asked whether the thrilling descriptions of savage life, as given in Cooper's delightful

\* A portion of this chapter has been published in the *Canadian Journal* for July.

† At the second rapids on an extensive area denuded of trees, having a very beautiful appearance, are two immense mounds which appeared to be tumuli. We forced our way to them, through a dense growth of grasses, nettles, and helianthus, twisted together by the wild convolvulus. Our path to the mounds passed through a neglected Indian garden, and near the decaying lodge poles of an extensive encampment. The mound ascended was about 40 feet high, and 100 broad at the base. It was composed of a rich black sandy loam, containing a large quantity of vegetable matter, and on digging a foot deep no change in the character of the soil was observable.—*Red River Report*, 1857.

‡ Chapter III., page 61.



romances, are imaginary or real; and, if real, whether they exist now among the tribes which have long been familiar with civilized man, such as the Plain Crees, the Sioux, the Swampys, and the Ojibways. It is enough to visit the secluded Ojibway graves, on the banks of Red River, and behold there Sioux scalps decorated with beads, bits of cloth, coloured ribbons, and strips of leather suspended at the extremity of a long slender stick, near the head of the grave, to feel satisfied that one barbarous custom still prevails. But to be an eye-witness of a scalp dance, or a skull dance, is more than enough to press home the conviction that the fiendish passions, so faithfully described by Cooper, still find expression in violent gesture, loud vociferation, triumphant song, and barbarous feasting, with undiminished strength and bitterness, even after a century's intercourse with civilized man.

In the following paragraphs I shall endeavour to describe some incidents which will show how far old superstitions and customs prevail among the Indians occupying the country between Red River and the south branch of the Saskatchewan.

Early last spring, the warlike bands of Ojibways, called the Lac la Pluie Indians, were thrown into a state of savage excitement by the arrival of messengers from their friends on Red River, with tidings that two Sioux had been killed and scalped in the plains. In testimony of this triumph they brought with them two fingers severed from the hands of the unfortunate Sioux. The announcement of the intelligence that the scalps would be sent after their Red River brethren had celebrated war dances over them, was received with wild clamour and shouting. After the scalps had been carried from hand to hand, and the victory that won them triumphed over with dancing, singing, and feasting, they would be returned to the warriors who took them, and finally suspended over the graves of relatives or friends mourning the loss of any of their kindred by the hands of the Sioux.

The Wood Indians assemble in the spring to celebrate their medicine feasts and other ceremonies. During the summer they separate into families or small bands, and hunt, fish, or go to the plains in search of buffalo. At the approach of winter they "take debt," or otherwise obtain supplies at the different posts of the Company, and retire to their winter quarters to trap the fur-bearing animals. The Plain or Prairie Indians follow the buffalo, and vary the monotony of their existence by forming war parties against their enemies, such as the Plain Crees against the Sioux and the Blackfeet, the Ojibways against the Sioux.

When on the south branch of the Saskatchewan last August, we found the Plain Crees hastening from the west to the east bank of the river, at the elbow, with a strong war-party of Blackfeet in pursuit. The chief Shortstick pointed out some of his band who had penetrated through the Blackfeet country to the Rocky Mountains two years ago, and returned with several scalps, grizzly bear claws, necklaces, pipes, and other trophies of success. He also related with much feeling how 25 young warriors had gone on a similar excursion the summer before last, but none had yet returned. Last July (1858) a large body of the Plain Crees met a portion of the Blackfeet tribe at the Eagle Hills, on the North Branch of the Saskatchewan, to arrange terms of peace. All matters went on smoothly, and the representatives of the two nations separated as friends. Some of the Crees, however, incapable of resisting the opportunity, stole some horses from the Blackfeet. They were pursued, and three of them taken. One was killed instantly; the others were led back in triumph to the camp of the Blackfeet. They were stripped, their hands were tied behind their backs, a hole was bored through both wrists, and a stick passed through them and so tightly fastened that it could not be removed without assistance; the captives were then separated, and dismissed singly to find their way to their friends. One only reached his tribe, and was lying in a tent which we passed on the banks of the Qu'Appelle, near the south branch.

Shortstick, when relating these adventures, held up the pipe he had in his hand, and exclaimed, "This is what my Blackfoot friend gave me one day, the next he killed my young men; he is now my enemy again." I expressed a wish to purchase the pipe. The chief's reply was, "Take it," handing it to me with a gloomy frown, and silently extending his hand for the common "clay" which I was smoking at the time. The great chief of the Plain Crees is styled "the Fox." He is held in high estimation by all the Plain Indians with whom he comes in contact, either in peace or war. He is dreaded by the Sioux, the Blackfeet, the Bloodies, the Fall Indians, the Assiniboines, and all the tribes who occasionally hunt on the Grand Coteau de Missouri and the South Branch of the Saskatchewan.

The cruel, barbarous treatment of prisoners so often described in narratives of Indian warfare is common even now in the prairies south of the Qu'Appelle and the Assiniboine. Not a year passes without two or more of the Red River half-breeds being scalped by Sioux; sometimes, as was the case last year, quite close to the settlement of St. Joseph, near the boundary line, about 30 miles west of Red River. When a prisoner is taken the Sioux sometimes adopt a terrible mode of death during the summer season. They have been known to strip a half-breed, tie him to a stake on the borders of a marsh in the prairie, and leave him exposed to the attacks of millions of mosquitoes, without being able to move any part of his body, and when the agony of fever and the torment of thirst come upon him, they leave him to die a dreadful, lingering death, with water at his feet, and buzzards hovering and circling around him in greedy expectation.

By way of illustrating the character of the medicine or conjuring ceremonies which may be witnessed during all seasons of the year, when several families are encamped together, I shall describe a scene of which I was an eye-witness last summer, near the Hudson Bay Company's post in the Touchwood Hills, between the South Branch of the Saskatchewan and the Assiniboine. The conversation was carried on in Cree, but, I believe, faithfully interpreted to me by the officer then in charge of the post, who was present. The interpretation was pronounced exact by one of the Cree half-breeds attached to my party.

At the time of my arrival at this post, a conjuror of some celebrity was endeavouring to cure a sickly woman by the exercise of his cunning. The sick woman was lying in a buffalo-skin tent. The conjuror, painted and decorated, employed himself in beating a medicine drum within a few feet of her, and singing at intervals the following words, first uttered slowly, with a pause between each word, then as in ordinary conversation, lastly, with energy and rapidity:—

"Great—is—the—man—who—walks—  
In—the—middle—of—the—earth,—  
He—is—the—only—true—Lord."

The word "Lord" is not employed in the sense of supreme master, but is rather intended to convey an idea of independence and individual power, and is better expressed in English, as the half-breeds informed me, by the word "gentleman."

The conjuror occasionally came out of the tent; and whenever the supposed Manitou or fairy, who was the alleged cause of the woman's illness, approached, a little bell, suspended from the poles supporting the tent, tinkled, and gave the alarm; the conjuror immediately seized his drum, commenced his song, and by his incantations succeeded in pacifying the Manitou. These proceedings continued for two nights; at the close of the second night, after a prolonged ringing of the little bell, violent shaking of the tent poles, loud beating of the drum and chaunting of the words before quoted, the conjuror announced that he had discovered the reasons of the Manitou's anger, and the means to appease it.

You had a dream, said the conjuror, and when you rose in the morning you promised to make an offering to the Manitou, you have forgotten your pledge and you are sick.

The woman demanded what she had dreamt and what she had promised, avowing her ignorance of both dream and promise. The conjuror told her that when the buffalo were around her tent last winter, and no fear of starvation before her eyes, she had dreamed that the buffalo would always surround her that famine and sorrow were always to be strangers to her, and in gratitude had vowed to make a sacrifice of her best robe. The woman, wearied no doubt with the conjuror's unceasing drum and song, probably too, believing that a false confession was the lesser evil, as it might bring the promised relief, acknowledged that the conjuror was in the right. The penalty she was told to pay consisted of the sacrifice of throwing away two robes, or double the amount of the promise she had made; after which her health was to be restored.

Scenes similar to the one just described may be witnessed whenever several families are camping together; but the sacrifices required to be made depend upon the ability of the deluded creatures to satisfy the demands of the conjuror.

"The Happy Hunting Grounds," the Heaven of Indians, so often spoken of by writers of fiction, are an actual reality in the imaginations of Crees and Ojibways, as well as of other north-western tribes. A Plain Cree on the Qu'Appelle gravely informed one of my men that he had been dead once and visited the spirit world. His narrative was to the following effect:—"I was sick, and fell asleep. I awoke on the bank of a deep river, whose waters were flowing swiftly and black from a great mist on the south to a great mist on the north. Many other Indians sat on the banks of the river, gazing at its waters, and on the gloomy shore which lay wrapped in mist on the other side. Time after time the mist before us would roll away and reveal the mouth of another great river pouring its flood into the one on whose banks I was sitting. The country to the south of this river was bright and glorious, to the north dark and gloomy. On the one side were the happy hunting grounds, on the other the hunting grounds of the bad Indians. Time after time my companions tried to cross the swift stream before us, in order to reach the happy hunting grounds; some arrived in safety, others reached the north bank, and disappeared in the mist which overhung the bad country. I tried at last, but the current was too strong for me, the recollection of bad deeds prevented me from stemming the current, and I was swept on to the north shore of the opposite river. I scrambled up the bank, and spent many moons in hunting in that dreary land; always on the point of starving, or being hurt by enemies, or wet and cold and miserable. At length I came upon a river like the one I had crossed, with mists and a great stream opposite, breaking clouds revealing happy hunting grounds on one side, and a more gloomy and terrible country on the other side. Other Indians were there before me, looking at the river and trying to cross; many succeeded, a few were swept to the bad country, these were very wicked Indians. I tried to cross. I knew I had been a good Indian in this dreary hunting ground. I took courage, and swam strong against the stream. I reach the happy hunting grounds; all my sorrow disappeared as I climbed to the top of the bank and saw before me Indians numerous as grass leaves, buffalo on the distant plains thick as rain drops in summer, a cloudless sky above, and a warm, fresh, scented, happy breeze blowing in my face. I sank to sleep, and woke alone in my tent in these prairies again."

Whatever faith the Indian medicine men possess in the efficacy of their charms, it is certain that they entertain great respect for the white man's medicine. A laughable incident occurred at the Touchwood Hills. The conjuror of whom mention has just been made entered the room at the post where I was sitting with Mr. and Mrs. H., who were temporarily in charge. The Indian and a companion seated themselves upon one of my boxes which contained a small medicine chest. Mrs. H. asked me to give her some sticking plaster. I crossed the room to open the medicine chest, when Mrs. H. (a half-breed) said to her husband, in the Cree language: "Will his medicines do me any harm if I stop here while he opens them?" Mr. H. answered jestingly, "Yes, you had better go into the other room." On motioning the Indians to move, they rose, and I opened the chest. The moment they saw the bottles, they hurried out of the room, hastened to the summit of a neighbouring hill, and, divesting themselves of every article of clothing, shook their garments repeatedly, and, after hanging them on bushes in the sun, squatted on their haunches to await the deodorizing influence of the breeze.

In the valley of the Qu'Appelle River we frequently found offerings to Manitou or fairies suspended on branches of trees; they consisted of fragments of cloth, strings of beads, shreds of painted buffalo hide, bears' teeth and claws, and other trifles. Our half-breeds always regarded them with respect, and never molested or liked to see us molest these offerings to Manitou. This custom prevails everywhere in the valley of Lake Winnipeg, and it may truly be said that the medicine drum is heard far more frequently in some parishes of Selkirk Settlement than the sound of church bells.

A conjuror celebrated for the potency of his charms will often exercise a very injurious influence over an entire band consisting of 10 or 12 families, in deterring them from frequenting particular hunting or fishing grounds if they offend him. Out of numerous instances of this dangerous influence I select the following. It occurred on the Dauphin River. When ascending that stream we came upon a large camp of Ojibways, who were on their way to the Hudson Bay Company's Post at Fairford. Their usual wintering place was at the Pike's Head near the mouth of Jack-fish river, an



excellent fishing station on Lake Winnipeg, but they had abandoned the intention of wintering there, in consequence of a threat which had been conveyed to them from a noted conjuror styled "the Badger," of the Grand Rapid of the Saskatchewan, to the effect that if the band ventured to winter at the Pike's Head, "he would do something." This ambiguous threat was quite sufficient to deter them from visiting their old haunts, and would probably be instrumental in producing much suffering, if not actual want, to many of the band.

There are many places on Lake Winnipeg and Manitobah, which the Indians who hunt and live on the shores of those great lakes dare not visit. There is scarcely a cave or headland which has not some legend attached to it, familiar to all the wanderers on these coasts.

On the west side of Lake Winnipeg, in the long, dark, and gloomy chambers formed by fissures in the limestone, bad spirits are supposed to dwell, according to the belief of the Indians who hunt on the coast, and he would be a powerful charmer who could induce a heathen Indian to approach, much less enter, the abodes of these imaginary Manitous.

Near Limestone Cave Point are several of these supposed fairy dwellings. When an Indian approaches them in his canoe, he either leaves an offering or cautiously gives them a wide berth.

On Lake Manitobah, Steep Rock Point is a noted dwelling-place for the "Little Men." This locality is described in Chapter IX. Some of the traditions connected with these places are very absurd, and appear to have little meaning to civilized men; nevertheless, among the barbarous tribes of those regions, they are associated with their past history, or with the history of the race that preceded them. Manitobah Lake, a body of water of very imposing dimensions, having an area of 1,900 square miles, derives its name from one of these superstitions. I stayed for three days on this dreaded island, where a Manitou dwells, but although Indians passed and repassed, heard and answered our shots, yet they could not be persuaded to land. The only evidence of fairy presence which I met with, was the "fairy-like music" of the waves of Lake Manitobah, beating upon the hard limestone shingle on the beach, and producing a very beautiful and melancholy resemblance to distant church bells. All night long this ringing musical sound was heard, and would, no doubt, in the active imagination of Indians, suggest the existence of those Manitous with which they people the air, the water, the forests, and the caves of the earth.

Sacrifices and offerings are of very frequent occurrence among the Indians of the Saskatchewan Valley. The customary offering consists of two, three, and sometimes five dogs. At the mouth of the Qu'Appelle River, an Indian, in June last, set his net and caught a large fish of a kind different to any with which he was familiar. He immediately pronounced it to be a Manitou, and carefully restoring it to the water again, at once sacrificed five valuable dogs to appease the anger of the supposed fairy. On approaching Long Lake, an arm of the Qu'Appelle River Valley, the Crees warned us not to visit the lake by night, as it was full of devils. They told me very extraordinary tales of the dimensions and power of these devils, and appear to live in awe and terror of them.

Like most heathens and barbarous races, Indians suffer much from their superstitious fears. When the weather is fine, and their tents are well supplied with provisions, they are an independent and joyous people. Full of frolic, and fond of relating anecdotes, they laugh immoderately at any trifling joke or absurdity, and seem thoroughly to enjoy existence.

When visiting the Crees of the Sandy Hills, on the South Branch, and passing the door of the tent belonging to Shortstick's eldest son (see Chap. V.), who accompanied me, I observed a young squaw outside, leaning upon sticks, evidently in great trouble, and weeping bitterly. The moment she saw us she hobbled into the tent, with a low cry of pain, and closed the entrance. I asked the interpreter what this meant. After some conversation with her husband, he said that the woman was suffering from a beating he had given her for a violation of her faith during his absence in the spring on a war excursion. "I would have killed her," muttered the husband, "but I thought it a pity to kill two at once. She had her choice whether she would have her hair, her nose, or her ear cut off, or whether she would have a beating. She chose what she has got; and I would have killed her had I not known I should regret having killed both." It is needless to add that the woman soon expected to become a mother.

Smearing the skin with different coloured pigments is a universal custom among the wood and prairie Indians. Sometimes the operation is very tastefully performed. Warriors on the "war-path" often paint the figure of the hand over the mouth, as used in sounding the war-whoop: this is a distinctive sign that the Indian so decorated has been recently, or is still, engaged in the pursuit of his enemies. Vermillion is the most coveted colour. The Ojibways are very fond of decorating their faces with this brilliant pigment. The plain Crees are partial to white and green; and not only paint the face, but also the chest and arms. The Plain Crees cut and gash the skin and flesh on the arms, sides, chest, and legs, as a token of grief for any deceased friend or relation. My friend Shortstick's body was dreadfully disfigured by scars from wounds made by himself in manifestation of his grief.

The origin of the aborigines on this continent still remains enveloped in thick darkness. Many of their manners, superstitions, and customs correspond to those of Orientals, and it is not improbable that modern ethnologists may be on the right track in their efforts to solve this deeply interesting question.

Humboldt tells us, in his "*Aspects of Nature*," that he "regards the existence of ancient connexions between the inhabitants of Western America and Eastern Asia as more than probable; but by what routes, or with what Asiatic nations the communications took place, cannot at present be decided. A small number of individuals of the educated priestly caste might, perhaps, be sufficient to bring about great alterations in the civil and social state of Western America.

"The stories formerly narrated of Chinese expeditions to the New Continent really apply only to voyages to Fusang or Japan. On the other hand, Japanese and Sian-Pi, from the Corea, may have been driven by storms to the American coast and landed there. We know, as a matter of history, that Bonzes and other adventurers sailed over the eastern Chinese Seas in search of some medicine which should entirely prevent death. Under Tschin-schi-kuang-ti, 209 years before our era, 300 young couples (young men and young women) were sent to Japan, and instead of returning to China

they settled at Nipon. May not similar expeditions have been driven by storms or other accidents to the Aleutian Islands, to Alashka, or to New California? As the western coasts of the American Continent trend from north-west to south-east, and the eastern coasts of Asia in the opposite direction, or from the north-east to the south-west, the distance between the two continents in 45 deg. of latitude, or in the temperate zone, which is most favourable to mental development, is too considerable to admit of the probability of such an accidental settlement taking place in that latitude. We must, then, assume the first landing to have been made in the inhospitable climate of from 55 deg. to 65 deg., and that the civilization thus introduced, like the general movement of population in America, has proceeded by successive stations from north to south. The remains of ships from Cathay, *i.e.*, from Japan or China, were supposed to have been found on the coasts of Northern Dorado (called Quivira and Cibora), at the beginning of the sixteenth century. Our knowledge of the languages of America is still too limited, considering their great variety, for us as yet entirely to relinquish the hope of some day discovering an idiom which may have been spoken, with certain modifications, at once in the interior of South America and in that of Asia; or which may at least indicate an ancient affinity. Such a discovery would certainly be one of the most brilliant which can be expected in reference to the history of mankind. But analogies of language only deserve confidence when the inquirer, not resting in or dwelling on resemblances of sound in the roots, traces the analogies into the organic structure, the grammatical forms, and into all which in languages shows itself as the product of the human intellect and character."

In order to understand the character and nature of wild Indians, they must be seen in their tents when well supplied with provisions, and disposed to be cheerful and merry. In the prairies when on horseback, they are often quiet and watchful, always on the look out, and if 20 or 30 are in a band, they generally manage to see a suspicious object in the distance at the same moment, so that a simultaneous note of exclamation is uttered by most or all of the party. In hunting the buffalo they are wild with excitement, but no scene or incident seems to have such a maddening effect upon them as when the buffalo are successfully driven into a pound. Until the herd is brought in by the skilled hunters all is silence around the fence of the pound, men, women, and children with pent up feelings, holding their robes so as to close every orifice through which the terrified animals might endeavour to effect an escape. The herd once in the pound, a scene of diabolical butchery and excitement begins; men, women, and children climb on the fence and shoot arrows or thrust spears at the bewildered buffalo, with shouts, screams, and yells horrible to hear. But when the young men, and even women jump into the arena amidst the dying and the dead, smear themselves with blood, thrust their arms up to the shoulders into the reeking bodies of their victims, the savage barbarity of the wild prairie Indian shows itself in its true colours. Not even a scalp dance over many fallen foes affords such a terrible picture of degraded humanity as a large band of prairie Indians, some hundreds in number, during and after the slaughter of buffalo in the pound.

The condition of the Indians of the Saskatchewan Valley at the present day is very different to what it used to be half a century since. Not only have imported diseases greatly diminished their numbers, but game of different kinds has become so scarce that during some seasons starvation is no fiction.

In sickness prairie Indians are much depressed, and often seek consolation in the monotonous drum of the medicine man and his heathenish incantations, an infliction which the grossest and most debased superstition alone would tolerate, submitted to with hope and confidence, however, by men who are anxious and timid during the roll of thunder, invoking the Great Bird by whose flapping wings they suppose it to be produced, or crouching from the blink of his all penetrating eye, which they allege is the lightning's flash.

The ties of kindred and relationship are of a very complex character among the Ojibways; in more than one instance a singular exemplification of cross relationship occurred during our voyage on lakes Winnipeg and Manitobah which is perhaps worthy of being recorded, as it may serve to show the permanency of ancient customs and traditions among families now dwelling nearly 1,000 miles west of the hunting grounds of their ancestors. Near the mouth of the Little Saskatchewan we met an Indian family in small canoes journeying towards the mouth of Red River. The family consisted of a young Indian, his wife and two little children. The father was born on the shores of Lake Winnipeg, and had never travelled east of the lake. After a few words had passed between him and a half-breed Ojibway from Lake Superior, (Wigwam,) they shook hands and proclaimed themselves related to one another. Each belonged, as I was informed, to the tribe which bore the name of the "Bear," and having by some means, which Wigwam could not or would not explain, ascertained this fact, they spoke to one another as brothers. A similar relationship was established between Wigwam and another Ojibway on Moss River, solely, as he informed me, because his own and his newly found friend belonged to a tribe whose distinctive name was the "Bear." The Cree half-breeds told me that in their communication with the Ojibways of Lake Winnipeg, and, further west, this recognition of relationship not unfrequently took place between individuals who met for the first time and who were born and lived in districts far apart. In connexion with this singular kind of relationship and the bearing it may possibly have upon the origin of the Indian races, I append the following extract from an ethnological paper read at the Montreal Meeting of the American Association for the advancement of science, by Lewis H. Morgan, Esq., of Rochester, N. Y.\*

"It has occurred to me, after a careful examination of the system of consanguinity and descent of the Iroquois, that we may yet be able, by means of it, to solve the question whether our Indian races are of Asiatic origin. Language changes its vocabulary not only, but also modifies its grammatical structure in the progress of ages; thus eluding the inquiries which philologists have pressed it to answer; but a system of consanguinity once matured and brought into working operation, is, in the nature of things, more unchangeable than language;—not in the names employed as a vocabulary of relationship, but in the ideas which underlie the system itself. The Indo-European nations have one

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\* See page 225, *Canadian Journal*, 1858.



system, identical in its principal features, with an antiquity of 35 centuries, as a fact of actual record. That of the Iroquois is original, clearly defined, and the reverse of the former. It is, at least, to be presumed that it has an antiquity coeval with the race. That of the Chippewa is the same as the Iroquois, with slight modifications; thus establishing the fact of its existence in two of the principal generic stocks. Besides this, there are traces of the same system among the Aztecs, Mohaves, Creeks, Dhcotaas, Delawares, Winnebagoes, and other races, all tending to show that the system has been, and now is, universal upon this continent. Should this last fact be established, the antiquity of the system, as coeval with the Indian race upon the continent, will also become established. Upon the basis of these two facts, and assuming that these races are of Asiatic origin, we may predict the existence of the same system in Asia, at the present moment, among the descendants of their common ancestors, if any remain.

"A brief explanation of the principal features of the system of the Iroquois is annexed, which will assist in working out every other, particularly if they are founded upon the same ideas.

"The institutions of the Iroquois were founded upon the family relationships; in fact, their celebrated league was but an elaboration of these relationships into a complex system of civil polity. At the base of this were their laws of descent. They were unlike both the civil and the canon laws; but yet were original and well defined. The chief differences were two: first, descent among the Iroquois followed the female line, or passed through the mother; while in each of the former systems it follows the male, or passes through the father. In the second place the collateral lines, with the Iroquois, were finally brought into or merged in the lineal; while, in the other cases, every remove from the common ancestor separated the collateral lines from the lineal, until after a few generations actual relationship ceased among collaterals.

"To bring out distinctly this code of descent, it will be necessary to give a brief explanation of the division of the Iroquois into tribes, the union of the several tribes into one nation, and of the several nations into one league. Without a reference to their civil organization, it would be impossible to present it in an understandable form.

"In each of the five nations who composed the original league, there were eight tribes, named: Wolf, Bear, Beaver, and Turtle; Deer, Snipe, Heron, and Hawk. The Onondaga nation, therefore, was a counterpart of the Cayuga, each having the same number of tribes, and of the same name; so also, interchangeably, of the Oneida, the Mohawk, and the Seneca nations. In effect, the Wolf tribe was divided into five parts, and one-fifth part of it placed in each of the five nations. The remaining tribes were subjected to the same division and distribution. Between the individual members of the Wolf or other tribe thus divided, or, in other words, between the separated parts of each tribe, there existed the tie of consanguinity. The Mohawk of the Turtle tribe recognized the Seneca of the Turtle tribe as a relative, and between them existed the bond of kindred blood. In like manner the Oneida of the Hawk tribe received the Onondaga or the Cayuga of the same tribe as a relative, not in an ideal or conventional sense, but as actually connected with him by the ties of consanguinity. Herein we discover an element of union between the five nations, of remarkable vitality and power. A cross-relationship existed between the several tribes of each nation and the tribes of corresponding name in each of the other nations, which bound them together in the league with indissoluble bonds. If either of the nations had wished to cast off the alliance, it would have broken this eight-fold bond of consanguinity. Had the nations fallen into collision with each other, it would have brought Hawk tribe against Hawk tribe—in a word, brother against brother. The history of the Iroquois exhibits the wisdom of these organic provisions; for, during the long period through which the league subsisted, they never fell into anarchy, nor even approximated to a dissolution from internal disorders.

"At no time in the history of the Iroquois could a man marry a woman of his own tribe, even in another nation. All the members of a tribe were within the prohibited degrees of consanguinity; and to this day, among the descendants of the Iroquois, this law is religiously observed. Husband and wife, therefore, were in every case of different tribes. The children were of the tribe of the mother. Here, then, we discover one of the central ideas of their laws of descent: to place the father and mother in different tribes, and to assign the children to the tribe of the mother. Several important results followed, of which the most remarkable was, the perpetual disinheritance of the male line. As all titles, as well as property, descended in the female line, and were hereditary in the tribe, the son could never succeed to his father's title of sachem, nor inherit even his tomahawk.

"A tribe of the Iroquois, it thus appears, was not, like the Grecian and Roman tribes, a circle or group of families, for two tribes were necessarily represented in every family; neither, like the Jewish, was it constituted of the lineal descendants of a common father; on the contrary, it involved the idea of descent from a common mother; nor has it any resemblance to the Scottish clan, or to the canton of the Switzer. It approaches, however, nearer to the Jewish. Denying geographical boundaries, a tribe of the Iroquois was composed of a part of a multitude of families, as wide spread as the territories of the race, but yet united together by a common tribal bond. The mother, her children, and the descendants of her daughters in the female line, would, in perpetuity, be linked with the fortunes of her own tribe; while the father, his brothers and sisters, and the descendants in the female line of his sisters would be united to another tribe, and held by his affinities. No circumstances could work a translation from one tribe to another, or even suspend the nationality of the individual. If a Cayuga woman of the Hawk tribe married a Seneca, her children were of the Hawk tribe and Cayugas, and her descendants in the female line, to the latest posterity, continued to be Cayugas and of the Hawk tribe, although they resided with the Senecas, and by successive intermarriage with them had lost nearly every particle of Cayuga blood. Neither could intermarriage with one of a foreign nation confer the Iroquois nationality upon the wife or children of the marriage, and the same *vice versâ*. If a Mohawk married a Delaware woman, she and her children were not only Delaware still, but ever continued aliens, unless naturalized as Mohawks, with the forms and ceremonies prescribed in case of adoption."

The difficulty of obtaining reliable information respecting the Indian population has been acknowledged by all who have given attention to this subject. I am convinced that the number of Indians inhabiting

Rupert's Land has been considerably overrated. The estimates published in the Appendix to the Report from the Select Committee on the Hudson Bay Company furnish the following result.

Thickwood Indians on the east side of the Rocky Mountains	-	-	35,000
The Plain Tribes (Blackfeet, &c.)	-	-	25,000
			<u>60,000</u>

The Indian population of Rupert's Land is estimated at 42,870. Over the plain or prairie tribes the H. B. Company profess to have no control, and they are returned as numbering 25,000 souls. It will appear further on, that excellent authorities, quoted in the text, do not assign more than half that number to the most numerous tribes of prairie Indians, who hunt on the Saskatchewan and Missouri, with their tributaries, and who occasionally trade on both sides of the international boundary,

The Plain Crees and Thickwood Indians are under the control of the Company, but I think that their numbers are also over estimated, and the grounds on which this opinion is advanced are as follows.

The basis of the census for the Thickwood Indians and the Plain Crees is the number frequenting the establishments of the Hudson's Bay Company in 1856, and the following enumeration at certain posts chiefly visited by the Plain Crees is given:—

Post.							No. of Indians frequenting it.
Fort Ellice	-	-	-	-	-	-	500
Qu'Appelle Lakes	-	-	-	-	-	-	250
Touchwood Hills	-	-	-	-	-	-	300
Fort à la Corne	-	-	-	-	-	-	300
							<u>1,350</u> Indians.

Upon perusal of the foregoing table the reader would infer that 1,350 Indians visited the posts named. It happens, however, that many Indians trade with two or even more posts, although every effort is made to limit them to one particular station. Their names, however, appear on the books at different establishments and in the enumeration of the Indians inhabiting certain districts, some of them are counted twice and even three times. I ascertained beyond doubt that this practice existed to an extent which would affect the census in a marked degree. The custom of giving credit to the Indians encourages this system, while a natural desire to attach additional hunters to a post, on the part of the traders, induces less caution than would otherwise be exercised. As the result of very careful inquiries wherever opportunities offered of obtaining exact information, I am inclined to think that the estimate of 42,870 is about one fourth too high.

The estimated number of Indians frequenting certain establishments of the Hudson Bay Company in 1856 are given in the following table.

The posts enumerated are included within the area embraced by the map which accompanies this Report; not including the east side of Lake Winnipegosis, the half-breed Settlements and Red River.

Locality.							Number.
Fort à la Corne	-	-	-	-	-	-	300
Cumberland House	-	-	-	-	-	-	250
The Pas	-	-	-	-	-	-	300
Fort Pelly	-	-	-	-	-	-	800
Fort Ellice	-	-	-	-	-	-	500
Qu'Appelle Lakes	-	-	-	-	-	-	250
Shoal River	-	-	-	-	-	-	150
Touchwood Hills	-	-	-	-	-	-	300
Egg Lake	-	-	-	-	-	-	200
Manitobah House	-	-	-	-	-	-	200

On the North Branch of the Saskatchewan, where the Prairie Indians assemble, the following enumeration is given in the Blue Book:—

Locality.							No. of Indians.
Edmonton	-	-	-	-	-	-	7,500
Carlton	-	-	-	-	-	-	5,000
Fort Pitt	-	-	-	-	-	-	7,000
Rocky Mountain House	-	-	-	-	-	-	6,000

This census is probably over-estimated; although it may approximate to the actual number of Indians visiting a particular post, yet there is strong reason to suppose that the same individuals are to a large extent enumerated twice, if not thrice.

The Plain or Prairie Indians belong to the following Principal Tribes:—

Blackfeet;	Crees,
Bloodies,	Assiniboines,
Fall Indians, or Gros Ventres,	Sioux,
Piegans,	Ojibways.

The Wood Indians of the Saskatchewan valley belong to the great family of Crees and Ojibways. The Sioux and Blackfeet are Dakotahs.

Mr. Harriet, a chief factor of the Hudson Bay Company, who had passed his life among the Blackfeet, estimated the six or seven tribes going by that general name as mustering 1,600 to 1,700 tents, at eight per tent, 13,000.\*

\* Colonel Lefroy, R. A.



Mr. Rowand, one of the oldest resident traders, estimates the Blackfeet tribes as follows :

Blackfeet proper	-	-	-	-	-	-	-	-	300
Piegans	-	-	-	-	-	-	-	-	400
Bloods	-	-	-	-	-	-	-	-	250
Gros Ventres, or Fall Indians	-	-	-	-	-	-	-	-	400
Circes	-	-	-	-	-	-	-	-	45
Cotones,	}	Mountain Tribes	-	-	-	-	-	-	250
Small Robes,									

At 8 persons per tent, 13,100. 1,645 tents.

The Assinniboinés are divided into Strongwood and Plain Assinniboinés, or Stonys.

Mr. Harriet, in 1842, estimated the Strongwood Assinniboinés at	-	-	80 tents, =	640
Mr. Rowand, the Plain Assinniboinés at	-	-	300	= 2,400
				380 tents, = 3,020

The Strongwood Crees about Edmonton Mr. Rowand estimated at	-	400 tents, at 10 per tent,	4,000
Crees of the Plains	-	200 " " "	2,000
			6,000

Colonel Lefroy\* states that the aggregate of the tribes inhabiting the Plains on British Territory was estimated in 1843 at not more than 23,400. Since that period they have diminished in numbers, and some of the Blackfeet bands stationed themselves permanently on the Missouri. In succeeding pages recent estimates of the Blackfeet tribes and the limits of the hunting grounds are given.

The Sioux and the Blackfeet being the most warlike tribes of the north-west, and retaining their ancient customs to the fullest extent, the following brief notices of these formidable native races are introduced. The Plain and Wood Crees and the Ojibways are almost altogether amenable to the influence of the Hudson Bay Company, and are in fact the hunters upon whom they rely for their supply of furs and provisions.

THE SIOUX OR DAKOTAH INDIANS.

The nation of the Sioux Indians, or Dakotah†, are composed of seven principal bands. Their aggregate number probably does not exceed 25,000. Their hunting grounds extend from the Mississippi River on the east to the Black Hills in Nebraska on the west, and from the mouth of the Big Sioux River on the south to Devil's Lake in the north. The area ascribed to this nation by the authors of the map attached to the Report of the Special Committee of the House of Commons on the Hudson's Bay Company comprehends a larger extent of territory than that included within these limits. Although the Sioux have no dealings with the half-breeds of Red River, or with the Hudson Bay Company, yet they often cross the 49th parallel in pursuit of the buffalo; and more frequently in search of a scalp from their hereditary enemies, the Ojibways and Crees. As the most dreaded invaders of the prairies north of the boundary line, this powerful nation deserves a special notice.

The name Dakotah signifies the "Allied," and they speak of themselves as the "Oceti sakowin," or "Seven Council Fires." The following enumeration of the principal bands which compose the nation, by the members of the American Dakotah Mission, will be found at length in the Grammar and Dictionary prepared with so much care, labour, and zeal under the editorial management of the Rev. S. R. Riggs, A.M., Missionary of the American Board of Commissioners for Foreign Missions.

1. The Mdewakantonwans, *Village of the Spirit Lake*. The name is derived from Mdewakan (Spirit or Sacred Lake), Mille Lacs (Minnesota), in the country now claimed by the Ojibways. This band numbers about 2,000.
2. The Wahpekutes, *Leaf Shooters*, 500.
3. The Wahpetonwans, *Village in the Leaves*, 1,200.
4. The Sisitonwans, *Village of the Marsh*, 2,500. Their hunting-ground is about the Coteau des Prairies, and they subsist on the buffalo.
5. The Ihanktonwanna, *the End Village Band*, 4,000. Their country is on the north-east of the Missouri, as far as Devil's Lake. These are the great enemies of the Red River half-breeds.
6. The Ihanktonwans, *the Village at the End*—2,400. Their country is west of the Missouri. They are frequently termed Yanctons.
7. The Tetonwans, *the Village of the Prairie*, 12,500. Their hunting ground is west of the Missouri. They are divided into seven bands: the Sicaugu, *Burnt-thighs*; the Itazipco, *Bow-pith*; the Sihasapa, *Black-feet*; the Minikanye wozupi, *Those who plant by the water*; the Oohenoupa, *Two-boilings*; and the Oglala and Hunkpapa.

The conjurors believe that their dreams are revelations from Spirit World, and they aver that their prophetic visions are the mental revival of occurrences in a former state of existence. Years with them are enumerated by winters; a distance is estimated by the number of nights a man will sleep on the way. The Ojibways have the same method of expressing time and distance. They divide the year into

\* See an article upon the Native Indian Population of British America, by Colonel Lefroy, R.A. *Canadian Journal*, Vol. 1. Old Series.  
† See introduction to a Grammar and Dictionary of the Dakotah language, published by the Smithsonian Institution.

moons, but weeks are unknown to them. The Dakotahs of the valley of the Minnesota have the following months in the year:\*

1. Wi-tehi, January; the hard moon.
2. Wicata-wi, February; the racoon moon.
3. Istawicayazan-wi, March; the sore (eye) moon.
4. Magaokada-wi, April; the moon in which the geese lay eggs.
5. Wozupi-wi, May; the planting moon.
6. Wazustecasa-wi, June; the moon when the strawberries are red,
7. Canpasapa-wi, July; the moon when the choke cherries are ripe.
8. Wasutou-wi, August; the harvest moon.
9. Psihnaketu-wi, September; the moon when rice is laid up to dry.
10. Wi-wazupi, October; the drying rice moon.
11. Takiyuha-wi, November; the deer rutting moon.
12. Tahcapsun-wi, December; the moon when the deer shed their horns.

The Dakotahs have a common and a sacred language. The conjuror, the war prophet, and the dreamer employ a language in which words are borrowed from other Indian tongues and dialects; they make much use of descriptive expressions, and use words apart from the ordinary signification. The Ojibways abbreviate their sentences and employ many elliptical forms of expression, so much so that Half-breeds, quite familiar with the colloquial language, fail to comprehend a medicine man when in the full flow of excited oratory.

The American Missionaries, in their admirably written Dakotah language, employ five vowels and twenty-four consonants, among which are two c's, two g's, two h's, two k's, two n's, two s's, two t's, and two z's. The repetition of the same letter is used to denote a guttural, an aspirate, an emphatic, or a nasal sound. Thus c is both an aspirate and an emphatic letter; g like the English g and guttural; h like the English h and guttural; k as in English and emphatic; n as in English and nasal; p as in English and emphatic; s as in English and aspirate; t as in English and emphatic; z as in English and aspirate.

All syllables are enunciated plainly and fully, but accentuation often determines the meaning of a word. There are three numbers—singular, dual, and plural; the dual including the person speaking and the person spoken to. The proper names of the Dakotahs are words, simple and compounded, which are in common use in the language. The son of a chief, when he succeeds his father, usually takes the name of his father or grandfather. As with the Ojibways and Swampys, their proper names consist of a single noun or a noun and adjective. The Ojibway have, however, distinct family or clan names which they employ when speaking of their ancestors; as I am of the family of the Bear, the Eagle, the Thunder-cloud, &c. The Dakotah have no surnames; the children of a family have particular names, which belong to them in the order of their birth up to the fifth child. In counting they use their fingers, bending them as they enumerate until they reach ten. They then bend down a little finger to record one ten, and begin again; when the second ten is counted they put down a second finger, and so on.

Dakotah verbs have only two forms of tense, the indefinite and the future; the other tenses are expressed by the help of adverbs and the context. Words in a sentence are thus placed: first the noun, second the adjective, third the verb, thus:—

Ateunyanpi mahpiya ekta nanke chin  
 Father-we-have heaven in thou-art the;  
 Nichaze kin wakandapi kte;  
 Thy-name the holy-regarded shall;  
 Nitokichonze kin u kte;  
 Thy-kingdom the come shall;†

#### THE BLACKFEET.

Mr. James Doty, who resided for many years in the country of the Blackfeet, and who is acquainted with a large portion of this nation, gave the following boundaries of their country and estimate of the numbers of the people to Governor Stevens in 1853.‡ The country in which they reside and hunt is bounded as follows: "By a line beginning on the north, where the 50th parallel crosses the Rocky Mountains, thence east on said parallel to the 106th meridian, thence south to the head waters of the Milk River, down said River to the Missouri, up the Missouri to the mouth of the Judith, thence up the Judith to its source in the Rocky Mountains, and north along their base to the place of beginning."

The country between the Missouri and the head waters of the Yellowstone is unoccupied. It is the great road of the Blackfeet war parties to and from the Crows, Flatheads, and Snakes. It may also be considered as a transient hunting ground of the Flatheads, as they hunt buffalo there for a short time in the fall.

The Blackfeet nation is divided into four distinct tribes, or bands, whose names, numbers, and localities§ are as follows:—

The Blackfeet	-	-	-	250 lodges; 1,750 population; 625 warriors.
The Bloods	-	-	-	350 do. 2,450 do. 875 do.
The Piegans	-	-	-	350 do. 2,450 do. 975 do.
The Gros Ventres	-	-	-	360 do. 2,520 do. 900 do.
Total	-	-	-	1,310 9,170 3,375

\* See Grammar and Dictionary before referred to.

† See a Grammar and Dictionary of the Dakotah language, published by the Smithsonian Institution.

‡ Explorations and Surveys for a Railroad route from the Mississippi to the Pacific, page 443.

§ The country occupied by these tribes is evidently more extensive than supposed by Mr. Doty; their permanent lodges were found far beyond the limits given in the text.

|| Called by the half-breeds, "Bloodies."



The Bloods and Blackfeet occupy the country between Milk and Marias Rivers to the 50th parallel of latitude.

The Piegans occupy the country between the Milk and Marias Rivers, and between the Teton and the Missouri.

The Gros Ventres occupy the country bordering upon Milk River from its mouth to the territory of the Piegans. The Bloods, Piegans, and Blackfeet speak the same language; the Gros Ventres, the Arapahoe language; they were adopted by the Blackfeet about thirty years since, having seceded from their own nation. On the upper Missouri, near the great bend, the Gros Ventres have a large village of mud houses. Some of the lodges are capable of supporting 100 persons. One part is appropriated to their horses, dogs, cattle, and chickens, another to their sleeping apartments. The lodges are built entirely by women. The Gros Ventres formerly hunted on the Assinniboine. Mr. J. M. Stanley, the artist of Governor Stevens' exploration, states that the Blackfeet proper are divided into three distinct bands: the Blood band, 400 lodges; the Piegan band, 430 lodges; and the Blackfeet band, 500 lodges, averaging 10 to a lodge, and amounting in all to 13,300 souls. The Piegans and Bloods hunt, trade, and winter on American soil, while the Blackfeet extend their hunts as far north as the Saskatchewan, and trade as frequently with the British as with the American Posts.\*

The following census of the Indian tribes of the United States, inhabiting the states and territories adjoining the 49th parallel, is abstracted from the statistics of the tribes as reported to the Bureau of Indian Affairs.†

Name of tribe.	Numbers.
Assinniboine -	- 8,900 Extending from the Missouri into Rupert's Land.
Blackfeet -	- 9,530 Nebraska.
Bloods -	- 1,612 Upper Missouri.
Crees -	- 800 Upper Missouri.
Sioux (Ihanktonwanna) -	- 4,000 Dakotah territory.
Gros Ventres -	- 2,500 Between the Missouri and the Saskatchewan.

## CHAPTER XIV.

### ON THE ORIGIN OF THE VALLEY OF THE QU'APPELLE, AND ON THE DISPOSITION OF SOME OF THE DRIFT ON THE SOUTH BRANCH OF THE SASKATCHEWAN.

Depression of the Country in the Region of the Moose Woods—Erosion of the Qu'Appelle Valley—Streams enter the Qu'Appelle Valley at right angles—Breadth of the Valley throughout—Ridges with Boulders—Origin of—Depth of the Fishing Lakes—Ancient Lake—Erosion of Main Saskatchewan—Peculiarity in the Lakes of the Qu'Appelle—Back Fat Creek—Possible Origin of Qu'Appelle Valley—Former Bed of a River, before the last Submergence of a Continent—Ancient River Valleys—Dr. Hitchcock's Enumeration of—Illustrations—The St. Lawrence—The Ottaway—Boulders in the Drift of the Saskatchewan—Boulders in the Blue Clay of Toronto—Forced Arrangement of—Mode in which Surfaces in the Blue Clay were exposed—Position of the Blue Clay—Lower and Upper Blue Clay—Disposition of the Boulders and Fragments of Shale—Illustrations of—Drift in Canada—Section of Drift—Discussion of the Mode in which the Boulders and Shale acquired a forced Arrangement—Thrown down a Subaqueous Bank—Objections to—Sorting of Materials—Agency of Ice.

#### THE ORIGIN OF THE QU'APPELLE VALLEY.

There are many features in the Qu'Appelle Valley which furnish materials for discussion. Some of these have been noticed in the preceding chapters, there are others, however, which deserve enumeration before venturing to express an opinion respecting the erosion of this long and deep excavation.

Our voyage down the South Branch has shown that in the region about the Moose Woods the whole country is much lower than either north or south of that expansion of the trough in which the South Branch flows. It appears to have been the seat of a former dilatation of the river, if not of an extensive, wide-spreading lake, which existed at the time when the Qu'Appelle Valley began to be eroded by its overflowing waters. The prolongation of the Eyebrow Hill in the form of a low dividing ridge, as far as Lumpy Hill, at the base of which, for a distance of 200 miles, the South Branch flows in a northerly direction, leads to the inference that the ridge marks the coast line of a former lake, although no resemblance to beaches or terraces was seen near the South Branch. Yet these might occur at a distance of eight or ten miles on the east side, and not be visible from the high banks of the river.

It does not appear probable that a little streamlet like the "River that Turns," or the drainage of the Sandy Hills still in process of formation, or of the Eyebrow Hill range, could have worn away a hard rock at the height of land, and excavated a valley half a mile broad, and even now 110 feet deep, notwithstanding the sand-drifts, which have certainly diminished its depth by many feet. It has also to be borne in mind, that the Qu'Appelle itself, issuing from the Eyebrow Hill range enters the great valley at right angles to its course, and a few hundred yards before joining it, flows through a narrow gully, not 200 feet wide. The "River that Turns" and all the little streams coming from the Sandy

\* Explorations and Surveys, page 449.

† *Vide* History, Condition, and Prospects of the Indian tribes of the United States, by H.R. Schoolcraft, L.L.D.

Hills enter at right angles and flow down the bank of the great valley into the ponds which occupy it at the summit level. There is no evidence of any eroding agency besides these streamlets now existing, and no range of mountain or high table-land from which streams draining into the valley might be supplied. It pursues a nearly straight course to the South Branch of the Saskatchewan, and maintains its breadth throughout. Were it not for the invasion of sand dunes, its outline would be exactly preserved from the Lake of the Sand Hills to the South Branch.

The plan of the Track Survey of the Qu'Appelle Valley, from Sand Hill Lake westward, showing its junction with the Saskatchewan, at the close of this report, exhibits in detail its most important features. The little streamlet from the Eyebrow Hill ridge is the real source of the Qu'Appelle. The ponds at the height of land are the drainage of the sand hills and dunes which stretch far and wide in a north-easterly and south-westerly direction.

There are three ranges of sand hills: one is shown a few miles west of Sand Hill Lake: the other, and most prominent, at the Dividing ridge; and the third on the western slope, invading that part of the great valley through which the "River that Turns" flows.

The ridges with boulders *on their western extremities*, occurring on the banks of the valley, on each side of the height of land, as described on pages 65 and 66 are curious illustrations of a force proceeding *from the west*. That force must have been water in motion, and although the forms of the ridges on the west side of the watershed in the valley are not so well defined as those on the east, yet they retain the distinguishing figure which is given to ridges shaped under the action of running water, while the disposition of the boulders on the west flanks appears to show that the direction of the current which bore the ice conveying them was from the west. The impression produced at the time when these ridges were examined was strongly in favour of the supposition that many or all of them were formed at one and the same period, and by a current bearing ice, such as that of a great river like the St. Lawrence or the Main Saskatchewan flowing easterly.

It will be observed, from an inspection of the table of the depth of the lakes in the Qu'Appelle valley, page 66, that the deepest fishing lake, as far as our soundings show, is the first and most easterly of the four; the smaller depth of the other fishing lakes may be explained by the occurrence of streams entering the valley from the prairies, and bringing down with them during spring freshets solid matter mechanically suspended, which would tend to diminish their depths in proportion to their proximity to the source of supply.

The existence of an ancient lake, of great extent, lying west of the prolongation of the Eyebrow Hill range to the Lumpy Hill of the Woods, is shown by the long horizontal lines of boulders which appear in the clay cliffs of the river below the Moose Woods. Above these parallel lines of boulders fine stratified mud is seen in layers, together with stratified sand and gravel. These horizontal tiers of boulders are described in Chapter V., page 73.

Conditions similar to those which would be required to produce this arrangement exist at the present day in Lakes Manitobah and St. Martin. The boulders stranded on the extensive shoals in those shallow bodies of water, as described in Chapter IX., are probably modern illustrations of the mode in which this distribution in long horizontal lines was effected.

I conceive that the South Branch, during the existence of this supposed lake, flowed into it, and that its waters, or part of them, were discharged by the valley of the Qu'Appelle, and during that period the ridges were moulded, and the boulders distributed on their western extremities. The deep fishing lakes, and the other lakes which now occupy a considerable portion of the valley, are the remains of the excavation. At that period Pembina Mountain, the Blue Hills of the Souris, and the flanks of the Riding Mountain probably formed the limit of Lake Winnipeg. These boundaries are more fully described in the chapter on the surface geology of the country explored. During the drainage of this region, and after the ancient lake, whose centre would be near the Moose Woods, had excavated a sufficient outlet for its waters down the present valley of the Main Saskatchewan, the Qu'Appelle valley would no longer contribute to its drainage, but receive only the drainage of the country which it now unwaters. A part of its valley would slowly undergo the process of filling up, either by drifting dunes, as at the Height of Land, or by washings from the prairie at the mouth of streams coming from the north and south. The change in the course of the South Branch may have been the result of a dislocation.

Long Lake affords another instance of an ancient river valley, and it does not appear improbable that future observations will establish its connexion with the same supposed ancient lake before alluded to. The Back-fat Lakes and Creek, inosculating with Pembina River, were probably the valley of a stream debouching into Lake Winnipeg when it washed Pembina Mountain.

The remarkable depth of the fishing lakes, and those lying further to the east, considered in connexion with other well-known phenomena, may suggest another explanation of their origin. It has been stated in the narrative, that north of the Moose Woods there are to be seen large blocks of limestone, containing many thousand cubic feet; these repose on the surface of the prairie, and doubtless they now occupy the position they assumed when brought thither by icebergs during the last period when that portion of the continent was under the waters of the ocean. The huge unfossiliferous boulder, 78 feet in circumference, which lies in the valley of the Qu'Appelle, was probably slowly sunk to its present position by the wearing away of its foundation as the valley was in process of formation, or it may have rolled from the prairie bank as it became undermined. It is not impossible, however, that it now occupies the spot where it was originally dropped from the ice floe which bore it from the north. This would involve the assumption that the Qu'Appelle valley dates the epoch of its erosion anterior to the last submergence of the continent, affording an illustration of a river valley before the epoch of the boulder drift. The physical aspect of the country is by no means opposed to this view, although there are other reasons which may be urged in opposition to it.

The occurrence of ancient river valleys on this continent has already attracted attention. In his *Illustrations of Surface Geology*, Dr. Hitchcock says: "Some of the erosions that have been described in this paper are clearly the beds of antediluvial rivers; that is of rivers existing upon this continent before its last submergence beneath the ocean; which beds were deserted when the surrounding surface emerged from the water, although essentially the same rivers as existed previously, must have been the result of drainage."



"The grounds on which I refer the cases mentioned below, and described in detail in this paper, to the latest of former continents, are the following:—

- "1. The occurrence of pot-holes in the walls of gorges, which are either dry or the bed of a brook too small to have produced them.
- "2. The outlet of such gorges in one direction into valleys now containing streams large enough to have formed the gorges; and, in the other direction, into valleys leading at a gentle descent to some rivers.
- "These two facts make it certain that the gorges were once the beds of rivers.
- "3. An accumulation of water-worn, and perhaps sorted materials, viz., gravel and sand to a considerable depth. This accumulation appears to me to have been made during the last submergence of the land, and to be the cause that prevented the ancient rivers from occupying their old channels upon the drainage of the country, and compelled them, at least for a considerable distance, to find a new channel. I consider the following as examples of the phenomenon, most of them very decided, that is, of these antediluvial river beds."

Here follows an enumeration of ten ancient river beds in Canada (Niagara), New England, and the State of New York.

It is, however, in the bed of the St. Lawrence and the Ottawa that we find the most striking illustration of ancient river valleys, and the most convincing proof that the form of the continent anterior to its last submergence was similar to its present outline. The rivers of a former continent had excavated channels through rock formations extending from the Tertiary to the lower Silurian. During the period of submergence the river valleys were partially filled up by drift, and when the continent rose again, or the sea lowered its level, the new rivers, draining regions differing but slightly from the old physical outline of the former continent, sought out their ancient channels, and if not filled with drift, occupied them at once, or, if obstructed by drift, re-excavated part of their former channels, and pursued their old courses to the sea.

Subjoined is an illustration from the valley of the St. Lawrence, taken from Sir Charles Lyell's "Manual of Elementary Geology":—

"I described, in 1839, the fossil shells collected by Captain Bayfield from strata of drift at Beauport near Quebec, in latitude 47°, and drew from them the inference that they indicated a more northern climate, the shells agreeing in great part with those of Uddevalla, in Sweden.\* The shelly beds attain at Beauport and the neighbourhood a height of 200, 300, and sometimes 400 feet above the sea, and dispersed through some of them are large boulders of granite, which could not have been propelled by a violent current, because the accompanying fragile shells are almost all entire. 'They seem, therefore,' said Captain Bayfield, writing in 1838, 'to have been dropped from melting ice, like similar stones which are now annually deposited in the St. Lawrence.'† I visited this locality in 1842, and



- K. Mr. Ryland's House.
- h. Clay and sand of higher grounds, with *Saxicava*, &c.
- g. Gravel with boulders.
- f. Mass of *Saxicava rugosa*, 12 feet thick.
- e. Sand and loam, with *Mya truncata*, *Scalaria Grænlandica*, &c.
- d. Drift, with boulders of Syenite, &c.
- c. Yellow sand.
- b. Laminated clay, 25 feet thick.
- A. Horizontal Lower Silurian strata.
- B. Valley re-excavated.

made the annexed section, which will give an idea of the general position of the drift in Canada and the United States. I imagine that the whole of the valley (B) was once filled up with the beds, b, c, d, e, f, which were deposited during a period of subsidence, and that subsequently the higher country (h) was submerged and overspread with drift. The partial re-excavation of B took place when this region was again uplifted above the sea to its present height."

La Grande Coulée, in the Blue Hills of the Assiniboine, described by Mr. Dickinson, page 30, offers another illustration of an old river valley, but probably of more recent origin than

that of the Qu'Appelle, nevertheless a curious and instructive example of surface geology in this part of Rupert's Land.

"We crossed another of these valleys, here so numerous, called 'La Grande Coulée de la Grosse Butte,' deriving its name from a large conical hill about 200 feet high. The valley varies in width from 20 to 30 chains, and is about 80 feet deep, but appearing much deeper in many places, by reason of the hills adjoining it. The sides are very precipitous, and the bottom is quite level and covered with beautiful grass. There is no creek flowing through it, or even the appearance of any recent one. Two miles up in it, towards the north, there is a small lake, and another valley branching off from it, which we crossed four miles further on: in it there is a small creek six feet wide and one foot six inches deep. The track turning to the north soon comes close to 'La Grande Coulée de la Grosse Butte,' and continues along it for nine miles. The scenery is now very wild and beautiful; the valley, the bottom of which is 80 feet below the general level of the country, cuts through ranges of hills many of them 150 feet high, and winds round the base of others, some bare and rugged, and some covered with poplars."

The section of the Qu'Appelle Valley from the South Branch to the Assiniboine, with cross-sections at the several points marked A, B, C, D, &c. (see lithograph at the end of the volume), considered with reference to the general features of the country and its geological structure, will be amply sufficient to prove that the deep lakes could not have been occasioned by falls or rapids. Nor can we assume that the strata at these points was of such a soft and yielding nature as to admit of its being eroded into the form of long, deep, and narrow basins at wide intervals apart. The weight of evidence seems to be in favour of the view that the South Branch of the Saskatchewan, at a remote period, flowed down the valley of the Qu'Appelle, and debouched into the low country bounded by the Pembina Mountain, or its continuation northwards.

\* Geol. Trans., 2nd series, vol. vi.p. 135.

† Proceedings of Geol. Soc., No. 63.



## THE DISPOSITION OF SOME OF THE DRIFT ON THE SOUTH BRANCH.

It has been stated in Chapter V., page 73, that boulders and small masses of shale in the drift cliffs, which occur at the bends of the river below the Moose Woods, do not occupy the position they would assume if they had followed the law of gravity, supposing them to have been dropped by icebergs or ice floes. Every fact relating to the drift, whether belonging to the boulder period or of more recent origin, is of interest, and may assist in the elucidation of that stupendous phenomenon and its subsequent changes, as well as tend to remove some of the difficulties with which the whole phenomena of the drift are still invested. The forced arrangement of blocks of limestone, slabs of shale and unfossiliferous boulders in the blue clay of Toronto formed the subject of a paper which I read before the Canadian Institute some years ago. As the opportunities for making observations upon this peculiar arrangement were very favourable at that time, I shall here introduce an abstract of the paper, with a view to explain more clearly than would otherwise be possible the manner in which slabs and boulders are found arranged in the drift on the South Branch.

The extensive excavations which were made three and four years ago in the clay deposits on which the city of Toronto is built, during the construction of various public works, such as the Esplanade and the Grand Trunk Railway, presented a very favourable opportunity for examining some peculiarities in the arrangement of the materials of which the Toronto blue clay consists. In the construction of the Esplanade, the plan pursued of removing the blue clay was well adapted to show a perfect sectional view of its components, without the risk of changing in the least degree their relative positions. The clay was cut away until a perpendicular wall was left, varying from 10 to 20 feet in height, according to the locality. Wedges were then inserted at the top of the artificial cliff, about two feet from its edge, and driven into the clay until a mass, frequently two feet broad, 15 or 20 feet long, and 12 or 18 feet deep, separated and fell. The fresh surface thus exposed was necessarily quite natural in every respect, not having been touched by the tool of the workman or changed by exposure to the weather.

During the years 1855 and 1856 a large area of sectional surface was exposed in this way on the Bay shore, and frequent examinations of the continually renewed surfaces led me to study the disposition of the materials composing the blue clay. Two varieties of blue clay exist in the neighbourhood of Toronto, forming deposits quite distinct from one another; it is, therefore, desirable to fix at once the position of the blue clay to which reference is now made. The deposit in question overlies the rocks of the Hudson River group, which are exposed in many localities on the lake shore and on the banks of the rivers near the city. Its position was well seen during the working of a quarry opposite the Parliament Buildings; it was there observed to rest upon an argillaceous shale of the same hue, and easily recognized as constituting, in fragments of different sizes, a large proportion of the substance of the blue clay. It can also be seen resting on the rocks of the same formation, a little beyond the new garrison, a few feet above the lake level, where it is not obscured by the débris of the cliff of which it forms the base—the upper portion of which is composed of yellow clay.

The thickness of this deposit of blue clay varies from 10 to 25 feet; its upper surface is irregular and undulating: upon it reposes sometimes stratified sand and yellow clay, sometimes unstratified yellow clay. Resting on the sand or yellow clay we find another kind of blue clay differing, however, essentially from the blue clay which lies at the base of the whole. This upper blue clay is well seen along the Scarboro' cliffs, where it is best exposed, and it is also recognized in many other localities near and in Toronto. The lower or inferior blue clay contains quartz sand and small rolled pebbles of granitic rocks, a considerable proportion of blue shale containing fossils belonging to the Hudson River group, and frequently large fragments of the last-named rock, together with more or less rolled or worn masses of granite, gneiss, &c.

The fragments from the Hudson River group frequently preserve their edges sharp and well defined, showing that they have not been water-worn or removed far from the rock from which they originated. They are found not only a few inches from the surface of the parent rock, but in numerous instances as far as 15 to 20 feet above it, imbedded in a peculiar manner in the blue clay. Some of the larger fragments are scratched and grooved.

A cursory inspection of the artificial cliffs, as they existed during the construction of the Esplanade, was sufficient to show that a considerable number of the pebbles and imbedded masses of rock did not occupy the position they would assume if they had not been subjected to some other force besides that of gravity or water in motion. The inclination of the subjacent rock is so slight (30 feet in the mile) that for all purposes of the present inquiry it may be considered horizontal. And it may be further remarked, that there is no reason to suppose that any material change in position has occurred since or during the accumulation of the blue clay. A large number of the fragments of rock seen in the blue clay are symmetrically inclined at an angle of 60, 70, and 80 degrees to the horizon, and frequently lean towards the east and north-east. Whenever favourable opportunities offered, I made measurements of some of the most striking of these rock fragments, and rough sketches of their position as they were revealed by the falling masses of the cliff, loosened in the manner already described.

The following brief notes will serve to illustrate this peculiarity better than a more lengthened description.

1. A mass of shale (Fig. 1) imbedded in the blue clay about 2 feet from its surface, and 18 from the solid rock. Largest diameter, 18 inches; breadth, 14; thickness, 7; inclined at an angle of about 50 degrees, and leaning towards the north-east.

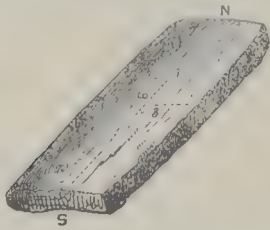
Fig. 1.





The greater number of water-worn stones and unworn fragments of shale appear to have the same inclination in this spot. <sup>2</sup> Locality, near the Water Works.

Fig. 2.



2. The general inclination of the fragments of shale a few hundred yards from the last-named place is at an angle of  $60^\circ$  and toward the east. (Fig. 2.)

3. Boulders of gneiss distinctly seen in the blue clay, associated with perpendicular fragments of shale.

4. A slab from the Hudson River group, 18 inches long, 15 broad, 3 and 4 thick, very little water-worn, 7 feet from the top of the blue clay, and 10 feet from the solid rock, inclined at a high angle towards the north-east. A boulder of gneiss near this block,

not much worn, and slightly inclined in the same direction. Around the slab numerous smaller fragments of rock present the same inclination. (Fig. 3.)

Fig. 3.



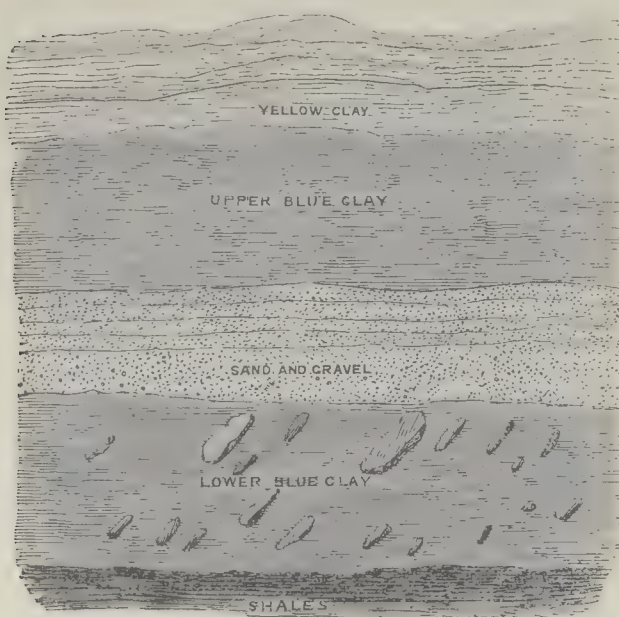
These illustrations represent the general character of the position of rock fragments in the blue clay for several miles along the lake shore. What force has thus symmetrically arranged these fragments of shale, &c.? That they now preserve the position into which they were forced by pressure, or that they were brought from a distance and left in that position, is sufficiently evident, as we cannot entertain the opinion that the rock on which the boulder drift rests has materially changed its inclination since or during the Drift epoch.

The materials composing the blue clay are of two descriptions, foreign and local. The same may be said of drift generally. It has been observed by Mr. Murray that the coarser fragments reposing upon each successive formation in the order in which they occur in Canada is

made up with the addition of whatever is of primary origin, of material derived from the formation itself, or of the ruins of some lower deposits whose outcrop is to the north.

The granitic fragments present in the blue clay of Toronto are evidently derived from the north or north-east, and must have travelled at least 100 miles before they were lodged in the place where they are now found. There can be no doubt that a very large portion of the drift of Canada has

Fig. 4.



been re-arranged since it was first deposited. The inferior layer of blue clay is, however, essentially different from the upper layer, which is frequently separated from it by a few feet of sand, and in some instances may even directly overlie it, and consist of a re-arrangement of its materials. The superior blue clay, together with the sand and yellow clay, frequently give evidence of stratification, and thus explain at once the nature of the force to which they have been subjected. (Fig. 4.)

The position of the rock fragments in the inferior blue clay shows that it cannot have been subjected to the action of water, otherwise they would not preserve the forced arrangement which distinguishes them. The fragments of shale, as represented in Fig. 4, if submitted to gravity alone, would not have assumed the position in which they were found had they dropped through water in motion or water at rest into soft mud. It is well known that shingle, sand, gravel, and clay, either separately or combined, when thrown down an incline, as in the construction of a railway embankment or as in a land slip, will assume a position upon the surface of the em-

bankment, which, if constructed of sand, is generally inclined about  $45^\circ$ ; if of harder or coarser materials, at a higher angle. If the embankment or incline be formed under water, like the deltas at the mouths of rivers, this inclination is much less, and is dependent upon the specific gravity of the materials; but under no circumstances is it so high as  $45^\circ$  when the bank is formed under water. If, now, we conceive a current sufficiently powerful to move masses of shale and boulders of the unfossiliferous rocks, it is not to be supposed that they would be found deposited upon the slope of a bank at so high an angle as the shale and boulders in the blue clay of Toronto; neither is it in the least degree probable that the current which could transport these heavy materials would admit of the mixture of clay, sand, shale, and boulders, such as constitutes the blue clay. The materials would be sorted by the current and deposited in the order of their specific gravity. The *sorting of materials* is one of the most positive proofs of the action of currents; and where no trace of *sorting* can be discovered, when fine sand, coarse sand, pebbles, and boulders are present, we may reasonably infer that no current assisted in distributing them.

Among the foreign materials entering into the composition of the blue clay, we find granitic masses which have been brought from the outskirts of the fossiliferous rocks in Canada, a distance of at least 100 miles from their present position; throughout the blue clay we discover also the magnetic oxide of iron, which is found in such abundance in the washed sand of the Peninsula of Toronto Harbour, and in ten-fold greater quantity on the Peninsula of the Rondeau, in Lake Erie, at treble the distance from its northern source. The materials of local origin exist in great abundance in the form

of fragments and masses of shale, limestone, and clay derived from the underlying shales, &c. The nature of the agent which transported the foreign materials from so great a distance is almost universally acknowledged to have been water and floating ice. The finer materials may have been conveyed by water, the coarser drift and erratics would require floating or moving ice. There can be little doubt that both water and floating ice (icebergs and floes) have been instrumental in bearing from northern fossiliferous and unfossiliferous rocks a considerable proportion of the numberless erratics which strew the surface of a large part of this continent, as well as much of the clayey deposits which we see everywhere around us. But the symmetrical arrangement of some of the slabs, pebbles, and boulders in the blue clay at Toronto, in the clay cliffs of the South Branch of the Saskatchewan, and in other localities where the same disposition may be witnessed, points also to the action of *glacial* or *stranded* ice. The phenomena may be explained by coast ice, or the dirt bands of glacial ice, but the entire absence of a sorting of fine and coarse materials seems to destroy the hypothesis which introduces the agency of currents of water, as the forced but symmetrical arrangement does that of floating ice. May not the plastic and irresistible agent which picked up the materials composing the blue clay, and then melting, left them in their present position, have been largely instrumental in excavating the basins of the great Canadian Lakes?

## CHAPTER XV.

### CLIMATE OF A PORTION OF RUPERT'S LAND.

Climate of the Laurentides and the Prairies—Frozen Lakes—Mean Annual Temperature—Arid and Humid Region—Sources of Humidity—Cause of Aridity West of the 98th Meridian—Influence of the Gulf of Mexico—Rocky Mountain System—Mississippi Valley—Arid Region of the United States—Humid Region of the Valley of Lake Winnipeg—Causes of—Elevation of the Country—Humid Pacific Winds—Northeastly Current—The Arid Region—Prevailing Winds—Source of the Humidity—Hail Storms—Thunder Storms in 1858—Progress of Dunes—Summer Surface Wind—Rocky Mountain Plateau—Depression in—Table of Elevation of Plateau and Passes—Importance of Capt. Palliser's Discoveries—Seasons of the Valley of Lake Winnipeg—Meteorology of Red River—Winter Temperatures—Winter Temperatures at Montreal—Cold Terms—Quebec Temperatures—Climate of the South Branch of the Saskatchewan—Limit of permanently frozen Soil—Growth of Forests—Tail of the Prairies—Prairies converted into Forest Land in Missouri—Seasons on the Main Saskatchewan—At Fort à la Corne—At Cumberland House—At Carlton House—At Red River—Character of the Great Plains in the United States—Major Emory's Statement—Auroras—Oct. 2nd—Oct. 27th—Colonel Lefroy's Observations—Altitude of Auroras—Connexion with the Atmosphere—Sound—Sir John Richardson's Observations—The Twilight Bow.

The climates of Canada and Rupert's Land, under the same parallels of latitude, vary to a considerable extent with the rock formations of the country. Throughout the undulating region of the Laurentides the proportion of water to dry land is about one to two, not collected into one large water area, but distributed over the surface of the country in the form of countless thousands of lakes, ponds, and marshes. The intense cold of winter is sufficient to solidify the deepest lakes for a depth of several feet, and the thawing of so much ice in spring has the effect of absorbing and rendering latent the heat which would be otherwise expended in warming the soil and advancing vegetation.

Lakes Winnipeg, Manitobah, and Winnipegosis, together with the smaller lakes belonging to the Winnipeg basin, are deeply frozen every winter, and ice often remains in their northern extremities until the beginning of June, greatly retarding the progress of vegetation on their immediate shores. Hence one reason that north of the 47th or 48th parallel the mildness of the seasons increases rapidly as we advance towards the west, after leaving Red River. The improvement arises not only from greater longitude, but also from the character of the rock formations by which the country is underlaid and surrounded. The soil of the prairies is in general dry, and is rapidly warmed by the rays of the sun in spring. The prairies enjoy too, north of the 58th parallel, the genial, warm, and comparatively humid winds from the Pacific, which are felt as far north as the latitude of Fort Simpson.\*

The mean annual temperature of 40°, as determined by the Smithsonian Institution, passes through Canada and Lake Superior, curves northward and leaves the United States for British America at about the 103rd meridian, crossing the South Branch of the Saskatchewan north of the Elbow.

The country embraced within the limits of this exploration may be divided into two regions in relation to climate; the arid and the humid region. The vast treeless prairie west of the Little Souris lies within that part of the area which receives comparatively a small annual rain-fall. Its northern limit is roughly shown by the Qu'Appelle Valley, or more accurately by an imaginary line drawn from the Fishing Lakes to the Moose Woods. North and east of this area the precipitation is considerably greater, and supplies the valley of the Main Saskatchewan, the Touchwood Hill range, and the valley of the Assiniboine with an abundance of moisture, which is protected and treasured by forests.

The valley of Red River east of the Little Souris, or the 101st degree of longitude, receives much humidity from the moist winds coming from the Gulf of Mexico up the valley of the Mississippi, and over the low height of land which separates the waters of Red River from those of the St. Peter.

The Touchwood Hill range and the country generally north of the Qu'Appelle Valley, and in an easterly direction towards and beyond Lake Winnipeg, are made humid by the south-west Pacific wind, in concurrence with the prevailing east wind of this region. These phenomena are referred to in detail in succeeding paragraphs.

The cause of the aridity and unfitness for settlement of fully one-third of the United States has been ably discussed by distinguished meteorologists. The physical geography of that vast region has been very admirably described by Dr. Joseph Henry.† I avail myself of a few extracts from Dr. Henry's paper to illustrate the causes which produce the aridity of a large portion of the valley of Lake Winni-

\* Colonel Lefroy—Meteorological Observations at Lake Athabasca and Fort Simpson, p. 139.

† Meteorology in its connexion with agriculture, by Prof. Joseph Henry, Secretary of the Smithsonian Institution.



peg, and the probable explanation of the humidity of the region properly belonging to the subordinate valley of the Assinniboine.

"The climate of a district is materially affected by the position and physical geography of the country to which it belongs. Indeed, when the latitude, longitude, and height of a place above the sea are given, and its position relative to mountain ranges and the ocean is known, an approximate estimate may be formed as to its climate.

"At the southern extremity of the United States is the great elliptical basin containing the perpetually heated waters of the Gulf of Mexico, an enormous steaming cauldron continually giving off an immense amount of vapour, which, borne northward by the wind of the south-west, gives geniality of climate and abundant fertility to the eastern portion of our domain. On the western side of the continent the coast presents, as a whole, an outline of double curvature, principally convex to the west in that part which is occupied by the United States, and concave further north. These bends of the coast-line and of the adjacent parallel mountain ridges affect the direction of the winds in this quarter, and consequently of the ocean currents. The Gulf of California at the south, between the high mountains of the peninsula of that name and those of the main land, must also modify materially the direction of the wind in that region.

"The continent of North America is traversed in a northerly and southerly direction by two extensive ranges of mountains—the Alleghany system on the east and the Rocky Mountain system on the west. We give the latter name to the whole upheaved plateau and all the ridges which are based upon it. These two systems separate from each other more widely as we pass northward, and between them is the broad interval which, within the territory of the United States, is denominated the valley of the Mississippi; but in reality the depression continues northward to Hudson's Bay, and even to the Arctic Ocean, giving free scope to the winds which may descend from that inhospitable region. It, however, may be divided into two great basins, one sloping towards the south, comprising the basin of the Mississippi, and the other sloping to the north, including the basins of Mackenzie's river and of Hudson's Bay, the dividing swell which may be traced along the heads of the streams having an elevation of about 1,200 feet.

"The general character of the soil between the Mississippi river and the Atlantic is that of great fertility, and as a whole, in its natural condition, with some exceptions at the west, is well supplied with timber. The portion also on the western side of the Mississippi, as far as the 98th meridian, including the States of Texas, Louisiana, Arkansas, Missouri, Iowa, and Minnesota, and portions of the Territory of Kansas and Nebraska, are fertile, though abounding in prairies and subject occasionally to droughts. But the whole space to the west, between the 98th meridian and the Rocky Mountains, denominated the Great American Plains, is a barren waste, over which the eye may roam to the extent of the visible horizon with scarcely an object to break the monotony. From the Rocky Mountains to the Pacific, with the exception of the rich but narrow belt along the ocean, the country may also be considered, in comparison with other portions of the United States, a wilderness unfitted for the uses of the husbandman; although in some of the mountain valleys, as at Salt Lake, by means of irrigation, a precarious supply of food may be obtained sufficient to sustain a considerable population, provided they can be induced to submit to privations from which American citizens generally would shrink. The portions of the mountain system further south are equally inhospitable, though they have been represented to be of a different character. In traversing this region, whole days are frequently passed without meeting a rivulet or spring of water to slake the thirst of the weary traveller.

"We have stated that the entire region west of the 98th degree of west longitude, with the exception of a small portion of Western Texas and the narrow border along the Pacific, is a country of comparatively little value to the agriculturist; and, perhaps, it will astonish the reader if we direct his attention to the fact that this line, which passes southward from Lake Winnipeg to the Gulf of Mexico, will divide the whole surface of the United States into two nearly equal parts. This statement, when fully appreciated, will serve to dissipate some of the dreams which have been considered as realities as to the destiny of the western part of the North American continent. Truth, however, transcends even the laudable feelings of pride of country; and, in order properly to direct the policy of this great confederacy, it is necessary to be well acquainted with the theatre on which its future history is to be enacted and by whose character it will mainly be shaped."

#### HUMID REGION OF THE VALLEY OF LAKE WINNIPEG.

Prominent among the causes which tend to give humidity, together with an elevated spring and summer temperature, to a part of the valley of Lake Winnipeg, there may be noticed:—First, the comparatively low elevation of the country above the sea level. The prairies of Red River, within British Territory, are not more than 730 feet above the ocean. Those on the South Branch of the Saskatchewan, at the Elbow, do not exceed 1,600 feet, and the mean elevation of the country, between the South Branch and the Riding Mountain is only 1,200 feet above the same level.

Second, the influence of the warm westerly winds from the Pacific Ocean, in connexion with the prevailing north-east wind, which is one of the established physical phenomena of this part of British America. It would appear, at first sight, that the snow-capped ridges of the Cascade, Blue and Rocky Mountains, would abstract so much heat from the warm westerly winds coming from the Pacific Ocean, as to neutralise their influence upon the winter and spring temperature of a large part of the country drained by the Saskatchewan. Such, however, is not the case; and happily for the purpose of practically substantiating this apparent anomaly, we have indisputable testimony.

In the magnetical and meteorological observations at Lake Athabasca and Fort Simpson, by Col. Lefroy, R.A., we find the following important observation, in relation to the phenomena of Pacific winds affecting the climate of the Northern regions:—

"A local phenomenon of interest was observed several times at Fort Simpson (lat. 61° 51' 7" N.; long. 8h. 5' 40" W.; 460 miles from Sitka, (1,800 geo. miles from Toronto), in the rapid rise of the temperature of the air, when the wind changed to the south-west from an easterly direction. It appeared as if the warmer air of the Pacific Ocean were transferred across the neighbouring ridges of the Rocky Mountains with little loss of its temperature."





## PREVAILING WINDS.

All the thunder-storms we encountered in 1858 in the valley of Lake Winnipeg came from the west, south-west, or north-west, with one exception. I do not find a single record of thunder-storms with heavy rain coming from the south. This may have been an exceptional year, but the warmth and dryness, often oppressive, of the south wind, west of the 100th degree of longitude, contrasted strongly with the humidity and coolness of winds from the west. This phenomenon is directly opposed to those which prevail in lower latitudes, and may probably be explained as follows:--

Warm air from the Pacific, loaded with moisture, passes at certain periods of the year over the whole range of the Rocky Mountains in British America and in the United States. These Pacific winds occasion but a very small precipitation of rain or snow on the eastern flank of the Rocky Mountains, south of the Great Missouri Bend. Similar winds from the Pacific do occasion a considerable precipitation in the northern part of the Saskatchewan valley. Whence, then, this apparent anomaly? It probably arises from the difference in the temperature of the two regions, the direction of the prevailing winds, and the lowness and comparatively small breadth of the Rocky Mountain ranges in that latitude. In spring and summer, warm westerly winds, laden with moisture, in passing over the mountain range south of, say, the 46th parallel, are cooled to a certain temperature, and precipitate the greater portion of their moisture, in the form of rain or snow, upon the mountain ridges. On arriving at the eastern flank of the Rocky Mountains, their temperature rises to that of the region over which they pass, being elevated by the deposition of their moisture in the form of rain or snow, and continually increasing density as they descend; but the capacity of air for moisture is well known to be dependent upon its temperature, within certain limits, hence the westerly Pacific winds become more warm and more dry as they descend the eastern Rocky Mountain slope, until they meet the moist winds from the Gulf of Mexico passing up the valley of the Mississippi, towards and through the region of the Great Canadian Lakes and over the low height of land separating the waters flowing into Lake Winnipeg from the Mississippi valley.\*

In the latitude of the valley of the Saskatchewan, however, the moist south-west winds from the Pacific find a broad depression in the Rocky Mountain range, and losing less humidity than those passing over the higher ranges to the south, meet with a prevailing north-easterly wind as they begin to descend their eastern flank, their temperature is consequently lessened instead of being elevated, and their capacity for moisture diminished, hence precipitation in the form of rain and hail takes place as they descend the slope towards Lake Winnipeg.

Hail-storms are not unfrequent during the summer months, and the prairies sometimes retain the records of their occurrence for many weeks. On the Grand Coteau de Missouri hail-storms are so violent that the stones have been known to penetrate the buffalo skin tents of the Indians who hunt on that elevated plateau. The thunder-storms of 1858 are given in the annexed table.

TABLE showing the NUMBER of DAYS on which RAIN fell, with the CHARACTER of the THUNDER-STORMS, during the SUMMER of 1858, in the VALLEY of the ASSINNIBOINE and SASKATCHEWAN.

Date.	Time.	Character of Storm.	Locality.
June 18	2-4 p.m. - -	Heavy rain, thunder - - - -	Prairie Portage.
" 19	6 a.m. - -	Slight rain - - - -	Ditto.
" 20	Sunset - -	A terrific thunder-storm, heavy rain, high wind -	Bad Woods.
" 21	11 a.m. 1 p.m. -	Tremendous thunder-storm, hailstones 1-1½ in. in diameter.	Bear's Head Hill.
" 21	6 p.m. - -	Thunder-storm, heavy rain - - - -	Ditto.
" 22	3.45 p.m. 6 p.m.	Terrific thunder-storm, continued roar of thunder without intermission for 1½ hours.	Sandy Hills.
" 25	8-10 p.m. - -	Violent thunder-storm, heavy rain - - - -	Little Souris.
" 26-27	Night - -	Thunder and rain - - - -	Ditto.
" 29-30	Night - -	Thunder and rain - - - -	Ditto.
" 30	6 a.m. - -	Heavy rain with rolling thunder, without intermission for 1 hour.	Ditto.
July 4	11 a.m. - -	Rain - - - -	Great Prairie.
" 5	10 p.m. - -	Lightning in the east, no rain, thermometer in shade 92°, at noon.	Ditto.
" 9	9 a.m. - -	Rain - - - -	Assinniboine.
" 11	3 p.m. - -	Thunder-storm, hail, and heavy rain - - - -	Fort Ellice.
" 13	7 p.m. 10 p.m. -	Thunder-storm of unusual violence and sublimity. See Narrative.	Qu'Appelle Valley.
" 14	2.30 p.m. to 4-30	Thunder and rain - - - -	Ditto.
" 14-15	Night - -	Rain all last night - - - -	Ditto.
" 15	- - - -	Rain North of Qu'Appelle, temp. at 6 a.m. 45°.	
" 18	11 p.m. - -	Heavy rain and thunder - - - -	Qu'Appelle.
" 19	4 p.m. - -	Rain North of Qu'Appelle Valley.	
" 22	Noon - -	Violent thunder-storm with heavy rain and hail -	Ditto.
" 28	1 p.m. - -	Rain in torrents - - - -	Ditto.
August 2	4 p.m. - -	Heavy thunder-storm with rain - - - -	South Branch.
" 4	4.30 p.m. - -	Thunder-storm, heavy rain - - - -	Ditto.
" 5	- - - -	Heavy rain - - - -	Ditto.
" 11	6 p.m. - -	Violent thunder-storm - - - -	Long Creek and Main Saskatchewan.
" 18	6 p.m. - -	Thunder-storm, rain and high wind - - - -	Main Saskatchewan.
" 25	Noon - -	Violent thunder-storm and rain - - - -	Ditto.

\* See Meteorology in its connexion with agriculture by Professor Joseph Henry.

The progress of dunes affords a very excellent indication of the direction and force of prevailing winds. The Devil's Hills and the sand dunes surrounding that dreary waste on the Assiniboine, in long. 99° 40' W., showed a bare advancing surface towards the north-east, being pushed in that direction by the prevailing south-west wind. The sand dunes at the Height of Land in the Qu'Appelle Valley, in long. 106° W. lat. 51° N., were advancing in an easterly direction; their clean surfaces were facing the east. Had they progressed under a prevailing south-west wind, they would long since have invaded and filled up the Valley of the Qu'Appelle. These existing records of prevailing winds during the period when the dunes are not frozen, show that while the south-west is the most effective as a summer surface wind in Rupert's Land under the 99th meridian, on the South Branch of the Saskatchewan, seven degrees further west, westerly winds prevail.

There is no doubt that the south-west Pacific winds, passing through the broad depression in the Rocky Mountains near the 49th parallel without losing the whole of their moisture, give humidity to the large portion of Rupert's Land over which they traverse.

The great plateau on which the Rocky Mountain ranges rest has an average elevation of 4,000 feet near the 32nd parallel of latitude, the lowest pass in the most easterly range being there 5,717 feet above the ocean. Along the 35th parallel the vertical section across the mountain system is of greater width and elevation. The mean height above the ocean is about 5,500 feet, and the lowest pass 7,750 feet. Between the 38th and 40th parallel the section has an elevation of 7,500 feet, and the lowest pass is 10,032 feet above the level of the sea. Beneath the parallel, of 47° the base of the plateau is narrow, and has an average altitude of 2,500 feet, the lowest pass being 6,044 feet above the ocean.\* Within British Territory, north of the 49th parallel the passes in the eastern range are still lower. The recent measurements by Captain Palliser's Expedition show that the height of the Kutanie Pass in latitude 49° 30' is nearly 6,000 feet above the sea level; the Kananaski Pass 5,985 feet, and the Vermillion Pass, traversed by Dr. Hector, in latitude 51° 10' only 4,944 feet above the ocean.

The following table exhibits the elevation of the Rocky Mountain plateau, and the height of the lowest passes above the ocean:—

TABLE showing the ELEVATION and BREADTH of the PLATEAU on which the ROCKY MOUNTAIN ranges rest, and the HEIGHT above the OCEAN of the lowest PASSES, from the 32nd parallel to the 51st parallel north latitude.

Breadth and Elevation of Plateau between the 32nd and 49th Parallels.

	3,000 and 4,000 feet.	4,000 and 5,000 feet.	5,000 and 6,000 feet.	6,000 and 7,000 feet.	7,000 and 8,000 feet.	8,000 and 9,000 feet.	9,000 and 10,000 feet.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
32nd parallel - -	170	503	60	—	—	—	—
35th " - -	185	160	303	235	95	—	—
38th and 39th parallel	143	725	284	110	155	80	20
41st and 42nd " -	160	580	285	270	107	20	—
47th and 49th† " -	130	97	28	—	—	—	—

Summit of the lowest passes above the Ocean from the 32nd to the 51st parallel, north latitude :—

	Feet.	
32nd parallel - - -	5,717	
35th " - - -	7,472	
38th and 39th parallel - - -	10,032	
41st and 42nd " - - -	8,372	
47th and 49th " - - -	6,044	
Kutanie Pass, lat. 49° 30' - - -	6,000 nearly	} Passes discovered by Captain Palliser's Expedition.‡
Kananaskis Pass, north of 49th parallel - - -	5,985	
Vermillion Pass, lat. 51° 10' - - -	4,944	

Not only has the depression in the Rocky Mountain range, north of the 47th parallel of latitude, a remarkable effect upon the climate of the Valley of the Saskatchewan, but its bearing upon means of communication between the Atlantic and Pacific slopes of the Rocky Mountain ranges is of the greatest importance.

#### SEASONS OF THE VALLEY OF LAKE WINNIPEG.

The natural division of the seasons in the Lake Winnipeg Valley is as follows:—

*Spring.*—April and May.

*Summer.*—June, July, August, and part of September.

*Autumn.*—Part of September and October.

*Winter.*—November, December, January, February, and March.

The natural division of the seasons is strikingly represented by the early and rapid advance of temperature in May in the valley and prairies of the Saskatchewan; and it is also indicated in a very marked degree by the extension northwards to the same valley, between the 95° and 105° of longitude, of numerous plants, whose geographical distribution, east and west of those limits, has a much more southern climatic boundary. The limits of trees rise with the isothermal lines, and these attain a much higher elevation in the interior of British America than on the Atlantic coast.§

\* Dr. J. Henry, Meteorology in its connexion with agriculture.

‡ Proceedings of the Royal Geographical Society, vol. iii., No. 5.

† Pacific railroad explorations.

§ Gray.



In relation to agriculture, the intensity of winter cold is of comparatively little moment. The elevated spring and summer temperature, combined with the humidity of the humid region in the Valley of Lake Winnipeg, enable Indian corn and the melon to ripen with certainty, if ordinary care is taken in selecting soil and in planting seed.

The following table of the meteorology of Red River was published in my report for 1857. In the absence of other information on this subject it is inserted here, but it must be borne in mind that the results of one year's comparison are not of much value in estimating the relative climatic adaptation of regions far apart; nor do they afford sufficient data for a fair estimate of the climate of the locality where the observations were made. It is doubtful in the present case whether the instrument was quite reliable at low temperatures. The observations at Red River were by Mr. Donald Gunn.

COMPARISON of the METEOROLOGY of RED RIVER SETTLEMENT with TORONTO, CANADA WEST, with reference to Mean Temperature, Depth of Rain, and Snow, from corresponding Observations at both Stations, from June 1855 to May 1856 inclusive.

Month.	Mean Temperature.		Rain in Inches.		Snow in Inches.		Temperature: Rain and Snow at Red River + or - of Toronto.
	Red R.	Toronto.	Red R.	Toronto.	Red R.	Toronto.	
1855.							
June -	69°10	59°93	6·0	4·07	0·0	0·0	Summer. Temperature + 3·78. Rain + 21·74 inches. Snow 0·0.
July -	71·16	67·95	12·0	3·24	0·0	0·0	
August -	63·03	64·06	12·5	1·45	0·0	0·0	
Summer -	67·76	63·98	30·5	8·76	0·0	0·0	
September -	59·26	59·49	5·0	5·59	0·0	0·0	Autumn. Temperature - 6·94. Rain - 5·16 inches. Snow + 5·2 inches.
October -	42·20	45·39	0·0	2·48	2·0	0·8	
November -	21·19	38·58	2·5	4·59	7·0	3·0	
Autumn -	40·88	47·82	7·5	12·66	9·0	3·8	
December -	-8·31	26·98	0·0	1·85	8·0	29·5	Winter. Temperature - 26·42.
1856.							
January -	-10·55	16·02	0·0	0·00	5·0	13·6	Rain - 1·85 inches. Snow - 38·8 inches.
February -	-1·71	15·69	0·0	0·00	6·0	9·7	
Winter -	-6·85	19·57	0·0	1·85	19·0	52·8	
March -	9·09	23·06	0·0	0·00	6·5	16·2	Spring. Temperature - 2·83. Rain + 3·14 inches. Snow - 4·8 inches.
April -	39·83	42·27	6·5	2·78	3·0	0·1	
May -	58·46	50·52	4·0	4·58	2·0	Inap.	
Spring -	35·79	38·62	10·5	7·36	11·5	16·3	
Annual -	34·38	42·50	48·5	30·63	39·5	72·9	

ANNUAL.						
Colder mean temperature	-	-	-	-	-	8°12
More rain	-	-	-	-	-	17·85 inches.
Less snow	-	-	-	-	-	33·4 "
More moisture and most probably less evaporation	-	-	-	-	-	14·53 "

At Quebec the difference between the mean temperature of summer and winter is 53°·93, at Fort Snelling 56°·81, and at Red River Settlement 74°61, according to the table above, which must be received with caution.

The summer temperature of Red River, and the absence of frosts during that season, determine its fitness for agricultural purposes. The following table exhibits a comparison, based upon one year's observation only, between the summer temperature of the Settlement and various other well known places in Canada :—

Summer temperature at Red River Settlement	-	-	-	67·76
Montreal, Canada	-	-	-	66·62
Quebec	-	-	-	62·91
Toronto	-	-	-	63·98

The extraordinary cold of the winter of 1855 and 1856 at Red River is shown by the tables for December, January, and February, (Mr. Gunn's observations,) which give a mean of -6°·85 for the mean temperature of that season; but if we turn to the records for 1857 and 1858,\* we find the mean temperature of that winter to have been 2°·87, showing a difference of eight degrees in favour of the winter of 1857-58. The temperatures recorded were as follows:—

	1855-56.			1857-58.		
December	-	-	-8·31	-	-	9·11
January	-	-	-10·55	-	-	6·2
February	-	-	-1·71	-	-	-6·68
Winter Mean	-	-	-6·85	-	-	2·87

\* Meteorological tables recorded by Mr. Dawson's party.

The thermometers supplied to the Red River Expedition in 1857 were made by Negretti and Zambra, and were of the best construction.\* They had been compared with a standard at the Provincial Observatory, and their errors recorded, but it does not appear that the proper corrections were made after each observation. Mr. Gunn's thermometer was an ordinary instrument, and, like many of its class, liable to errors at low temperatures. It is, therefore, probable that his winter temperatures are too low, and that the true mean of the winter months at Red River, and consequently the annual mean, may be considerably higher than they appear from his observations.

The cold of February 1858 was exceptional. At Montreal it was the coldest February on record, being 14°·05 below the mean temperature of February 1857.† But it cannot be denied that the winter cold of Red River is excessive, and the temperature sometimes falls so low as to freeze mercury in a few minutes.

The Meteorological Register kept at the Stone Fort, Lower Settlement, in 1847, under the superintendence of Captain Moody,‡ from which extracts were permitted to be made by Dr. Owen, furnish trustworthy evidence respecting the severity of the climate in winter.

The mean temperature for January 1847 was -12°·5. Observations being taken at 9 a.m., 3 p.m., and 9 p.m. During 22 consecutive days of this period, from the 5th to the 26th inclusive, the thermometer never once rose to zero. The lowest temperature reached was -48°, the highest 30°, giving a range of 78°. On the coldest day, the 20th, when the thermometer showed -48° at the Stone Fort, and -47° at Fort Garry, mercury froze in 15 to 20 minutes when exposed in bullet moulds.

Although there is no record of cold terms in Canada approaching the extreme low temperature and extending over so long a period as those instanced above, yet cold terms of great intensity are not uncommon in Lower Canada. In the excellent observatory of Dr. Smallwood's at Isle Jesus, nine miles west of Montreal, the following records of cold terms have been preserved :—§

LOW TEMPERATURES AT ISLE JESUS, C. E.

On the 22nd and 23rd Dec. 1854.				On the 9th, 10th, and 11th Jan. 1859.			
22nd.—8 a.m., 31·6 below zero.				9th.—6 a.m., 29·9 below zero.			
9	„	27·0	„	7	„	29·0	„
10	„	19·1	„	9	„	28·4	„
11	„	17·8	„	12	„	23·8	„
12	„	16·6	„	2 p.m.,	21·5	„	
1	p.m.,	12·1	„	9	„	33·9	„
2	„	11·8	„	10	„	34·2	„
3	„	8·1	„	12	„	36·0	„
7	„	23·4	„	10th.—6 a.m.,	43·6	„	
8	„	26·9	„	7	„	43·1	„
10	„	28·2	„	9	„	41·6	„
12	„	34·8	„	12	„	20·1	„
23rd.—6 a.m.,	36·2	„		2 p.m.,	14·3	„	
7	„	36·0	„	9	„	28·8	„
8	„	34·3	„	10	„	29·2	„
10	„	24·1	„	12	„	31·6	„
12	„	13·4	„	11th.—6 a.m.,	37·1	„	
2	p.m.,	12·6	„	7	„	36·9	„
4	„	9·1	„	12	„	24·8	„
6	„	12·6	„	2 p.m.,	19·9	„	
10	„	9·1	„	9	„	21·0	„
				10	„	21·6	„
				12	„	18·1	„

In January 1859 the thermometer did not rise above zero during a period of 124 hours 30 minutes, or more than five days. Mercury froze in the open air. The mean temperature on the 9th was—27°·8; 10th,—29°·0; 11th,—28°·2. Dr. Smallwood says that this cold term was felt generally throughout Canada and the Eastern States, and seems to have travelled from the west.

The following minimum temperatures were observed at different places :—

Rochester	-	-	-	-	-	10·0 below zero.
Brooklyn (New York)	-	-	-	-	-	9·0 „
Boston	-	-	-	-	-	14·0 „
Toronto	-	-	-	-	-	38·0 „
Quebec	-	-	-	-	-	40·1 „
Huntingdon	-	-	-	-	-	44·0 „

\* These thermometers, together with other meteorological apparatus, were furnished to the different members of the Red River Expedition in 1857, by the permission of the Rev. Dr. Ryerson, Chief Superintendent of Schools, from the stock of instruments provided by the Chief Superintendent for observatories attached to the Grammar Schools throughout the Province. The thermometers were compared and their errors determined and tabulated at the Provincial Observatory. A table of errors was attached to each instrument.

† Records of St. Martin's Observatory, Isle Jesus.

‡ See Dr. Owen's Geological Survey of Wisconsin, Iowa, and Minnesota, page 181.

§ " Canadian Journal " for 1855, and " The Canadian Naturalist " for April 1859.



For the purpose of comparing the Monthly Mean at Quebec (lat. 46° 49' 2", long. 71° 16) with those of Red River, the following table is inserted :—\*

—				Mean.	Maximum.	Minimum.
1854.						
October	-	-	-	46°05	64°7	+31°6
November	-	-	-	31°83	59°8	+10°0
December	-	-	-	13°08	36°6	-19°2
1855.						
January	-	-	-	16°70	46°0	-14°0
February	-	-	-	10°55	36°8	-29°5
March	-	-	-	21°06	47°3	2°4
April	-	-	-	34°14	59°8	5°9
May	-	-	-	49°03	83°0	32°0
June	-	-	-	58°34	88°0	43°2
July	-	-	-	68°86	90°3	51°9
August	-	-	-	61°54	85°0	38°3
September	-	-	-	55°15	81°3	34°7
October	-	-	-	45°43	60°4	28°4
November	-	-	-	28°75	34°3	21°81
December	-	-	-	18°09	40°1	-19°2
1856.						
January	-	-	-	8°19	27°0	-16°5
February	-	-	-	11°99	31°9	-18°0
March	-	-	-	17°60	39°0	-11°0
April	-	-	-	36°90	55°3	6°4

In the absence of instrumental observations, the progress of vegetation affords the best indication of climate, apart from latitude and elevation above the sea. It has been observed elsewhere that there exists an extraordinary difference between the characteristic fruit tree of the South Branch, the Misaskatomina (*Amelanchier Canadensis*), and the same tree on the North Branch of the Saskatchewan. On the South Branch at the Elbow, and for 40 miles down the river, this shrub attains an altitude of 20 feet, with a stem fully three and three and a half inches through; the fruit is large and very juicy; the size of the berry there is equal to the largest black currant, resembling a small grape more than any other fruit.

The period of flowering and fruiting is about three weeks earlier in latitude 51° than between the 53rd and 54th parallels west of the 100th degree of longitude. The prairies of the Assinniboine, of the Qu'Appelle, and of the South Branch of the Elbow are decorated with brilliant spring flowers, and covered with luxuriant herbage, at a time when the ice still lingers at the head of Lake Winnipeg, or chills the air and arrests vegetation in Cedar and Cross Lakes on the Main Saskatchewan. Two and a half degrees north of Cumberland the soil is permanently frozen three feet below the surface. Sir John Richardson relates that in 1851 he did not disengage his canoes from the ice at the upper end of Lake Winnipeg until the 9th of June. At the Touchwood Hills horses are allowed to remain in the open air all the winter, finding sufficient pasture under the snow to keep them in good condition. (See page 78 for a short description of the winter climate at the Touchwood Hills.)

The growth of forests is very intimately connected with the climate of a large extent of country. That forests once covered a vast area in Rupert's Land there is no reason to doubt. Not only do the traditions of the natives refer to former forests, but the remains of many still exist as detached groves in secluded valleys, or on the crests of hills, or in the form of blackened prostrated trunks covered with rich grass and sometimes with vegetable mould or drifted sand. The agent which has caused the destruction of the forests which once covered many parts of the prairies in Rupert's Land is undoubtedly fire, and the same swift and effectual destroyer prevents the new growth from acquiring dimensions which would enable it to check their annual progress. Nearly everywhere, with the exception of the treeless, arid prairie west of the Souris, and west of Long Lake on the north side of the Qu'Appelle, young willows and aspens were showing themselves where fire had not been on the previous year. South of the Assinniboine and Qu'Appelle few plains had escaped the conflagration in 1857, and the blackened shoots of willow were visible as bushes, clumps, or wide-spreading thickets where the fire had passed.

The end or tail of the prairies is at Fort Liard, a short distance to the south of Fort Simpson (lat. 61° 51' 7" N.). There is a long high belt of prairie land which runs as far as the neighbourhood of that locality, at the foot of the Rocky Mountains.†

In the state of Missouri forests have sprung up with wonderful rapidity on the prairies as the country becomes settled so as to resist and subdue the encroachment of the annual fires from the west. Missouri lies within the limit of the humid south-west wind coming up the Valley of the Mississippi, and enjoys a greater rainfall than the region west of the 100th degree of longitude.

\* See " Canadian Journal "—Old Series.  
† Col. Lefroy.—Evidence before the Select Committee of the House of Commons.

## GENERAL CHARACTER of the SEASONS on the MAIN SASKATCHEWAN, East of CARLTON HOUSE.

The following tables will serve to show the general character of the seasons at important points in the Valley of Lake Winnipeg:

*Extracts from a Journal kept at "Fort à la Corne," on the Main Saskatchewan, Lat. 53°30, Long. 104°30.*  
1856.

- April 1. No frost last night, but thick mist this morning. The weather has been warm, although cloudy.  
 „ 2. Hard frost last night, but mild during the day.  
 „ 4. Slight frost last night, day very mild. Snow dissolved a great deal during the day. Water making its appearance on edge of river.  
 „ 7. Froze hard last night, and has been cold most of the day.  
 „ 8. Do. do. no thaw during the day. River rising very much, and boat frozen in.  
 „ 9. Ice made a start previous to moving.  
 „ 17. Weather warm, ice drifting down river.  
 „ 19. Weather fine. Annual goose dance of McLeod took place to-day.  
 „ 21. Rain with N.W. wind.  
 „ 23. Had good fall of snow during night. Continued snowing without intermission the whole day. Nets set for first time. One sturgeon, ten suckers, and one gold-eye caught.  
 „ 25. Hard frost last night.  
 „ 26. Weather fine, considerable quantity of ice in river, but melting fast.
- May 1. Weather warm. Change perceived on trees, they are getting a little *green*.  
 „ 2. Working in garden; put down peas, onions, radish, and a few greens. Net produced two sturgeon.  
 „ 6. Weather warm.  
 „ 10. Storm of snow and rain during last night, with a strong north wind, which continued at intervals during the day.  
 „ 12. Planted north field with potatoes, and ploughed south field.  
 „ 13. Cloudy, rain, with N.W. wind. Planted potatoes in south garden.  
 „ 14. Cold north wind. Sowed four beds of Swedish turnips.  
 „ 21. Thunder and lightning most of last night. Rain poured down in torrents. River rose considerably to-day.  
 „ 30. Saskatchewan Brigade arrived this afternoon. Started same evening.
- June 1. Clear and beautiful to-day.
- Sept. 16. Raining all day, wind east.  
 „ 17. Clear, but rather cold. Slight frost last night. Wind N.E. (light.)  
 „ 20. Mild and warm during day. Slight frost last night.
- Oct. 2. Raining all morning, wind W. Cleared up in the afternoon. Men in morning cleared all the *potato* stalks out of north garden, and in afternoon commenced again the potatoes in south garden.  
 „ 13. S.W. wind. Fall boats started this morning for Carlton.  
 „ 17. Fine weather, men employed in garden.  
 „ 18. Do. do. putting dung in garden.  
 „ 22. Very hard frost over night.  
 „ 23. Severe frost last night.  
 „ 26. Snowed during night, but thawed as it fell. Blowing very hard.
- Nov. 11. River full of ice.  
 „ 16. Weather fine. One cow calved.  
 „ 31. Slight fall of snow last night, but day remarkably fine.
- Dec. 1. Weather fine, not in the least cold. Have had no cold weather as yet, compared to last year.  
 „ 2. Weather colder than of late.  
 „ 5. Slight fall of snow during night.  
 „ 11. Very cold.  
 „ 12. Cold very severe.  
 „ 31. Snowing most of the day.
- 1857.
- Jan. 2. Cold, and snowing at intervals.  
 „ 3. Very cold.
- Mar. 29. Hard frost last night.  
 „ 30. Very warm; snow melting about the fort.  
 „ 31. Raining during the night. Slight rain during the day.
- April 2. North wind, and cold. No thaw these three days back.  
 „ 3. North wind, and very cold.  
 „ 4. North wind.  
 „ 5. Weather milder; a slight thaw.  
 „ 6. South wind; thawing a great deal.  
 „ 8. Hard frost last night; cold all day. North-west wind, accompanied with snow, which continued most of the day.  
 „ 9. Snowed last night; cold during day. Water appearing on edges of river.  
 At this time last year ice started in river. What a difference this year. We cannot go anywhere at present without snow shoes. Our cattle are nearly starved; they cannot go about, as the snow is so hard.  
 „ 10. Weather still cold; wind variable.  
 „ 11. Storm of snow and wind.



- 1857.
- April 12. Hard frost last night. Cold all day. No thaw.
- „ 13. Blowing hard, accompanied with snow. Day fine and snow dissolving. Turned very stormy in the afternoon. North wind with snow.
- „ 14. Still cold. North wind. No thaw.
- „ 15. Southerly wind, but still cold. River still rising at edges. Little or no thaw during day.
- „ 16. Weather clear, but still cold. Little or no thaw. Notwithstanding the late cold weather the ice went off this day.
- „ 17. Weather same. Very little ice drifting down river.
- „ 18. Weather still cold. North wind.
- „ 19. Fine during day. Sun shining bright. Snow melted a good deal.
- „ 20. Day fine, but weather turned cold towards evening. Had a slight fall of snow last night.
- „ 21. Beautiful day. Snow dissolving fast. Little or no ice drifting.
- „ 22. Cloudy and variable, very little thaw.
- „ 23. Strong south wind. Thawing very much.
- „ 24. Snowed without intermission the whole day. Wind variable and blowing hard.
- „ 25. Beautiful day. Warmest we have had this season.
- „ 27. Cloudy and cold, with slight snow.
- „ 28. Weather fine and warm.
- „ 29. Cold and cloudy. Slight snow.
- „ 30. Beautiful day, but blowing hard.
- May 1. Weather and wind from same quarter. Snow dissolving fast.
- „ 3. Ice drifting all last night, but not much to-day.
- „ 5. Disagreeable day. Snowing without intermission with a cold north wind. River full of ice.
- „ 8. Stormy northerly wind, and very cold.
- „ 12. Weather warm. Yesterday planted potatoes and onions in south garden, and to-day sowed cabbages in boxes.
- „ 15. Mild, wind south.
- „ 18. Boisterous weather.
- „ 20. Beautiful day. All hands employed planting potatoes. Sowed turnips, carrots, beans, &c. Nets caught three sturgeon and nine suckers.
- „ 21. Very warm. Annual goose dance came off.
- June 2. Hard frost last night. Froze my beans, and the hops were affected also.
- „ 7. Rained hard all last night, and continued without intermission all day.
- „ 9. Fine weather, river still rising.
- „ 15. Very warm and clear this afternoon.
- „ 30. Beautiful day. Bull dogs so numerous that horses had to be put in stable and grass cut for them. Starvation is staring the people in the face. Have caught no sturgeon for some time back. Our nets produced nothing to-day.
- 1858.
- April 20. Warm and clear, south wind.
- „ 21. Ice drifting in river. Large quantity of ice on banks.
- „ 22. Cold north wind.
- „ 24. Slight fall of snow in morning. Rain towards sunset. Still cold, wind south-west.
- „ 25. Warm and fine to-day.
- „ 27. South wind. Warmest day this spring.
- „ 28. North wind. Cold and blowing hard.
- May 1. South wind. Warm. Sky overcast with smoke. Large fire close to fort. Clearing up north garden.
- „ 7. Set four men to dig potatoe ground in south garden. Caught one sturgeon—first this spring.
- „ 11. Cold north wind. Cut the potatoes for planting.
- „ 12. Planted potatoes in south field, and commenced to dig the north field for sowing. Sowed beetroot, radish, and lettuce.
- „ 15. South wind. Weather cold. Planted north garden with potatoes.
- „ 17. Still cold. Slight fall of snow in night.
- „ 18. Wind from north, and cold. Think we are going to have a second winter.
- „ 19. Continues cold. Wind north.
- „ 20. Weather improving. Wind south-west.
- „ 21. Warm and mild. South wind.
- „ 22. Warm and fine.
- „ 23. Warm in morning. Thunder and rain towards sunset.
- „ 24. Warm. Wind south. Clearing up garden. River muddy, and water rising fast.
- June 1. Wind south, and weather warm.
- „ 8. Wind north, and appearance of cold. Think we are going to have a cold summer. Garden herbs slow in making their appearance above ground.
- „ 15. Weather continues warm.
- July 1. Boisterous weather. Wind north.
- „ 10. Very warm to-day. Bull dogs so numerous, horses and cattle had to be kept in stable all day. Men hoeing south garden.
- „ 21. A very fine day.

## SEASONS AT CUMBERLAND HOUSE.

In the following table of phenomena, indicating the *progress of the seasons at Cumberland House*, are combined the observations of Sir J. Richardson, in the spring of 1820, with those of chief factor John

Lee Lewis, in 1839 and 1840, distinguishing the remarks by the years. The supposed altitude of Cumberland House above the sea is 900 feet, according to Colonel Lefroy's calculations.\*

- Mar. 4. Water collecting in pools round the establishment. 1840.  
 „ 7. Much bare ground visible.  
 „ 8. The snow, which covered the ground to the depth of three feet, was observed to moisten in the sun for the first time this season. 1820.  
 „ 12. Temperature in the shade rose for the first time to + 30° F. The melting snow began to drop from the eaves of the houses.  
 „ 21. Patches of earth became visible, the season being in respect to the melting of the snow 14 days later than that of 1840. The River Saskatchewan broke up partially, the melting snow covered with *poduræ*, as it is also frequently in the autumn.  
 „ 24. A white-headed eagle was seen, this being almost always the first of the summer birds which arrives; it comes as soon as it can obtain fish. In 1840 the first eagle was seen on the 26th.
- April 2. The River Saskatchewan froze over again, after some very cold days.  
 „ 7. Barking crows (*Corvus Americanus*) seen. They were not observed till the 19th in 1840.  
 „ 8. First snow bunting seen (*Emberiza nivalis*). 1840.  
 „ 9. A merganser seen. 1820.  
 „ 10. Willow catkins beginning to burst.  
 „ 12. Geese and swans seen in 1820. In 1840 they were not seen till the 20th; and pelicans and ducks were observed that year on the 21st.  
 „ 13. Buds of *Populus balsamifera* bursting. 1820.  
 „ 17. Plovers, grakles, and orioles seen, and on the following day Canadian jays and fly-catchers. Frogs croaking.  
 „ 20. Coltsfoot (*Nardosmia palmata*) flowering.  
 „ 26. Alder flowering. The sugar harvest, which is collected in this district from the *Negundo fraxinifolium*, commenced in 1820 on the 20th of this month, and lasted till the 10th of May. The flow of the sap is greatly influenced by the direct action of the sun, and is greatest when a smart night's frost is succeeded by a warm sun-shining day. The flow ceases in a cold night.  
 „ 28. The Saskatchewan thoroughly broken up. The ice on Pine Island Lake did not disappear until nearly a month afterward. Wahlenberg observes that the mean temperature of the air in Lapland must rise to 40° F. before the rivers are completely free. The Saskatchewan opens in this district before the mean heat for 10 days rises so high; but its upper part flows from a more southerly and warmer, though a more elevated country.  
 „ 30. Commenced ploughing. 1840.
- May 1. *Anemone patens*, or wind flower, in blossom; its leaves not yet expanded. 1820.  
 „ 2. A fall of snow to the depth of two feet. 1840.  
 „ 13. Planting potatoes.  
 „ 14. Sowing barley. 1820. *Negundo fraxinifolium* and gooseberry bushes in flower.  
 „ 17. Willows, gooseberries, aspens (*Populus tremuloides*) in leaf. Various *Drabæ* in flower. 1820. In 1840 the trees were bursting their buds at this time.  
 „ 17. Wheat sown on the 8th of this month above ground to-day, having germinated in nine days. 1840.  
 „ 21. Barley sown on the 14th above ground, having taken seven days to germinate.  
 „ 22. Leaves of the trees expanding rapidly.  
 „ 24. *Ulmus Americana* flowered. 1820.  
 „ 25. Pine Island Lake clear of ice. 28th. *Prunus pennsylvanica*, *P. virginiana*, and *Amelanchier* in flower. 30th. From the 23rd to the 30th of this month, in 1840, the temperature in the shade at 2 p.m. varied between 78° and 93° F. On the 30th potatoes planted on the 13th appeared above the ground. 1840.
- June 12. All the forest trees in full leaf. 1820.
- Aug. 1. Commenced reaping barley. On the 15th, 18th, 19th, and September 1, the thermometer at noon ranged between 80° and 90°, being the hottest days in the month. There was much thunder and hail on these days. 1839.
- Sept. 2. Flocks of water-fowl beginning to arrive from the north.  
 „ 3. The first fall of snow this autumn.  
 „ 4. Vast numbers of water-fowl flying southward. A severe fall of snow and frost in the north causes these birds to hurry to the south.  
 „ 11. First hoar-frost. Birch and aspen leaves turning yellow.  
 „ 14. Wild fowl numerous.  
 „ 20. Snow.  
 „ 21. Ditto very heavy.  
 „ 24. Thunder and lightning.
- Oct. 1. Taking up potatoes.  
 „ 5. Leaves all fallen from the deciduous trees.  
 „ 11. The thermometer at 2 p.m., in the shade, 68° F., being unusually high.  
 „ 14. Water-fowl passing southward in large flocks. 1839.  
 „ 15. Bays of the lake frozen over.  
 „ 16. The ground frozen hard.  
 „ 17. Last water-fowl seen this season.  
 „ 18. Lake entirely frozen over. In 1839 the Little River was frozen over on the 24th of this month, but broke up again in part, and remained partially open all the winter.  
 „ 31. Waveys (*Anas hyperborea*) passing. Lake partially open.

\* Arctic Searching Expedition. Sir John Richardson.



## SEASONS AT CARLTON HOUSE.\*

The following are the *phenomena of the spring of 1827 at Carlton House*, in lat. 52° 51' N., long. 106° 18' W., on the eastern limits of the Saskatchewan prairie lands, and at an elevation above the sea of about 1,100 feet.

- Feb. 15. Snow thawing in the sunshine, and on the 17th many sandy hummocks on the plains were bare. This is at least three weeks earlier than the thaw commences in an early season at Cumberland House, which is a degree further north, but is 200 feet lower.
- March 6. Trees thawed in fine days, and on the 8th the black earth on the immediate banks of the river was softened to the depth of two inches by the power of the sun's rays. At this place the westerly winds bring mild weather, and the easterly ones are attended by fog and snow.
13. Sparrow-hawks (*Falco sparverius*) arrived from the south, and on the 17th several migratory small birds were noticed.
- „ 29. Large flocks of snow-birds (*Emberiza nivalis*) came about the establishment; and by the 31st steep banks, which had a southern aspect, were clear of snow.
- April 1. Many *Fringillidæ* (birds of the sparrow tribe) were seen. On the 2nd swans arrived, and by the 3rd much snow had disappeared from the plains.
- „ 4. The snow at this time was melting in the shade, and the sap of the maple trees (*Negundo fraxinifolium*) began to flow.
- „ 6. Geese arrived. Stormy weather, about the middle of the month, retarded the arrival of the summer birds; but the plants continued to grow fast. On the 20th the Telltale plover (*Charadrius vociferus*) and several small birds came.
- „ 22. *Turdus migratorius*, *Phyrhula ludoviciana*, and *Lanius excubitor* were seen, and the flowers of *Anemone patens* expanded.
- „ 27. Ice in the River Saskatchewan gave way. Frogs began to croak.
- „ 28. Canada cranes (*Grus Canadensis*) arrived.
- May 1. *Sturnus ludovicianus* arrived, and the last flocks of *Emberiza nivalis* departed for the north.
- „ 2. On this day *Icterus phœniceus* and *Scolecophagus ferrugineus* were seen, and most of the water-fowl had by this time arrived. On the 4th *Phlox hoodii* flowered.
- „ 5. *Ranunculus rhomboideus*, *Viola debilis*, *Nardosmia palmata*, and several carices flowered.
- „ 6. *Hirundo viridis* and many gulls arrived.
- „ 7. On this day the sap of the ash-leaved maple, which had flowed scantily for 10 days, ceased to run altogether, and the sugar harvest closed. *Avocetta Americana* arrived. *Populus tremuloides* in flower.
- „ 9. Crow-blackbirds were first seen. *Corydalis aurea*, *Corylus Americana* and *rostrata*, *Hippophae Canadensis*, *Thermopsis rhombifolia*, *Vesicaria arctica*, and *Alnus viridis* flowered. 12th. *Potentilla concinna*, *Townsendia sericea* flowered. 14th. Gooseberry bushes coming into leaf. Ash-leaved maple flowering seven days after the sap had ceased to flow from wounds in the stem. 16th. The *Picus varius* arrived in considerable numbers, and on the 19th the *Viola nuttalliana* flowered.

The average antecedence of spring phenomena at Carlton House to their occurrence at Cumberland House is between a fortnight and three weeks. The difference of latitude, which is only one degree, is nearly counterbalanced by 200 feet of greater altitude; but the dry, sandy soil of the plains, which are early denuded of snow, gives the spring there a great superiority over that of the lower country, where the ground is almost submerged, and the greater part of it ice-bound for a month after the river is open.

## SEASONS AT RED RIVER.

*On the progress of the Seasons and state of the Weather at Red River Settlement, from 1st June 1855 to 31st May 1856.*

1855. June 5th was the coldest day in the month. Thermometer, 7 a.m., 58; 2 p.m., 63; 9 p.m., 56. The 14th was the hottest day. Thermometer, 7 a.m., 72; 2 p.m., 88; 9 p.m., 71. 3 inches of rain fell on the 17th, 1 on the 19th, and 6 on the 25th.

July 2nd was the coldest. Thermometer, 7 a.m., 56; 2 p.m., 78; 9 p.m., 68; light rain. The 25th was the hottest day. 7 a.m., 87; 2 p.m., 92; 9 p.m., 82. 7th, rain  $3\frac{3}{8}$  inches. 10th, rain  $\frac{3}{4}$  inches. Thunder-storm on the 17th, rain 3 inches. 26th, 1 inch rain; 29th, 3 inches rain; 30th, 2 inches; total  $14\frac{5}{8}$  inches. Wheat out of the ear. On the 12th hay-cutting commenced. Tabani and mosquitoes very numerous and troublesome.

August.—Coldest day, 29th. Thermometer, 7 a.m., 44; 1 p.m., 68; 9 p.m., 56. The hottest day was the 5th. 7 a.m., 67; 2 p.m., 86; 9 p.m., 76. On the 8th, 5 inches of rain fell; 11th,  $5\frac{1}{4}$  inches fell; 14th, 2 inches; 27th,  $\frac{1}{4}$  inch; total,  $12\frac{1}{2}$  inches. Barley harvest commenced about the 1st; wheat harvest on the 15th. Slight frost on the 30th.

September.—The coldest day was the 30th. Thermometer average + 48. The hottest day was the 5th; thermometer, 7 a.m., 70; 2 p.m., 80; 9 p.m., 70. Total of rain during the month,  $6\frac{1}{2}$  inches. Finished storing wheat on the 8th. A few leaves falling. 26th, grey geese flying to the south.

October.—The warmest day was the 1st. Thermometer, 7 a.m., 56; 2 p.m., 70; 9 p.m., 58. Some snow fell on the 4th. Taking up potatoes on the 8th. White geese flying to the south, and continued to do so up to the 20th, and a few flocks later than that; all the larger kind of ducks leave about the same time. The deciduous trees are bare of leaves, except the oak, and some of the hardier kinds.

November.—The 2nd was the warmest day. Thermometer, 7 a.m., 32; 2 p.m., 38; 9 p.m., 36;  $2\frac{1}{2}$  inches rain fell on the 3rd; 5 inches of snow fell on the 11th; 12th, river covered over with ice. The coldest day of the month was the 21st; thermometer, 7 a.m., - 12; 2 p.m., + 8; 9 p.m., + 6. Warm weather from the 21st to the end of the month. 7 inches of snow fell during the month. Flocks of snow birds have made their appearance from the north, and all the summer birds are gone.

\* Arctic Searching Expedition. Sir John Richardson.

December.—The warmest day was the 6th. Thermometer, 7 a.m., + 22; 2 p.m., + 26; 9 p.m., + 30. The coldest day was the 24th; thermometer, 7 a.m., - 48; 2 p.m., - 30; 9 p.m., - 40. We had six days of very cold weather, including the 23rd and 28th. The wind blew from the north during three days before the severe cold began; during its continuance there was very little wind, and for two of the coldest days it was at the south. 8 inches of snow fell.

1856, January.—The warmest day was the 17th. Thermometer, 7 a.m., + 10; 2 p.m., + 22; 9 p.m., + 16. The coldest was the 7th; thermometer, 7 a.m., - 36; 2 p.m., 28; 9 p.m., - 36. 5 inches of snow fell. The average cold for this month has not been great; very little wind.

February.—Coldest day the 2nd. Thermometer, 7 a.m., - 36; 2 p.m., - 20; 9 p.m., - 34. The warmest day was the 20th; thermometer, 7 a.m., + 26; 2 p.m., + 35; 9 p.m., + 24. 6 inches of snow fell. After the 12th spirits of wine in the glass stood with few exceptions above zero, and the weather has been pleasant.

March.—The coldest day was the 8th; 7 a.m., - 32; 2 p.m., 24; 9 p.m., - 26. The warmest day was on the 22nd. Thermometer, 7 a.m., + 28; 2 p.m., + 38; 9 p.m., + 34. The thermometer fell during the night a few degrees below zero; but on the whole the weather was pleasant; 6½ inches of snow fell. Much of the snow melted during the month. Barking crows made their appearance about the 20th.

April.—Geese made their appearance on the 2nd, and the snow birds left us for the north. The 12th was the coldest day this month. Thermometer, 7 a.m., + 16; 2 p.m., + 30; 9 p.m., + 24. Warmest day, 23rd; thermometer, 7 a.m., + 46; 2 p.m., + 66; 9 p.m., + 44. About 6 inches of snow and 5 of rain fell. On the 16th the rain began to throw off its winter coat; clear of ice on the 20th. Sturgeon taken in the river in great numbers; the snow all away. Wild fowl to be seen in every direction on the 29th, and sowing wheat commenced.

May.—The coldest day, 11th. Thermometer, 7 a.m., + 34; 2 p.m., + 43; 9 p.m., + 30. The warmest day was the 18th, 7 a.m., + 75; 2 p.m., + 84; 9 p.m., + 56; 4 inches rain fell on the 26th. On the 4th whip-poor-will began his serenades. The wheat sown on the 29th has germinated, and given a green appearance to the field. On the 9th wild geese abundant in the plains; maple in leaf; gooseberry bushes the same; finished sowing wheat on the 10th.

1856. Wheat sown in the beginning of May was in the ear on the 13th July, and ripe on the 20th August. The wheat sown on the 29th April was ripe on the 14th August. The hottest day this last summer was the 20th of July. Barley harvest commenced in July; finished cutting wheat on the 28th August; slight frost on the 30th of the same month; potatoes taken up first week of October.

6th September.—Flocks of grey geese flying to the south. *Prunus Americana* ripe and very plentiful in the first part of this month, or rather before this month. Flocks of passenger pigeons are in from the north, and leave from the 20th to the last of the month. On the night of the 7th whip-poor-will gave us his parting song. *Coregonus lucidus* enter the river to spawn. The *Coregonus albus* in Lake Winnipeg commences spawning about the 10th of October, and ends about the 1st November.

This register was kept by Mr. Donald Gunn, of the Lower Settlement, Red River. For the details of the register see the Red River Report for 1857.

#### GENERAL CHARACTER OF THE REGION WEST OF THE 98TH MERIDIAN IN THE UNITED STATES.

Very great misapprehension has prevailed with regard to the region west of the Mississippi, as well as of the valley drained by the Saskatchewan. Sanguine enthusiasts have laid out new states and territories on the broad map of the Federation, and peopled them in imagination with bustling, industrious, and wealthy communities. Other visionaries have converted the 400,000 square miles drained by the Saskatchewan into a region of unbounded fertility and inexhaustible resources. Whereas, a proper appreciation and use of facts will convince the most sanguine that the larger portion of this area is, in its present state, unfit for the permanent habitation of man, both on account of climate, soil,\* and absence of fuel.

The candid opinion of Professor Joseph Henry regarding the adaptation of a large portion of the United States for settlement has been already given; it is confirmed and strengthened by the following excellent summary from the pen of Major Emory, of the United States and Mexican Boundary Commission. It will at once occur to the reader that a knowledge of these facts gives great additional value to the truly fertile valleys of Red River, the Assiniboine, part of the Qu'Appelle, and portions of the South and North Branch of the Saskatchewan.† It determines also the direction in which efforts should be made to people this great wilderness, and guide the progress of settlement in such a manner as will render the country available for that grand desideratum, a route across the continent:

"In the fanciful and exaggerated description given by many of the character of the western half of the continent, some have no doubt been influenced by a desire to favour particular routes of travel for the emigrants to follow; others by a desire to commend themselves to the political favour of those interested in the settlement and sale of the lands; but much the greater portion by estimating the soil alone, which is generally good, without giving due weight to the infrequency of rains, or the absence of the necessary humidity in the atmosphere, to produce a profitable vegetation. But, be the motive what it may, the influence has been equally unfortunate by directing legislation and the military occupation of the country, as if it were susceptible of continuous settlement from the peaks of the Alleghanies to the shores of the Pacific.

"Hypothetical geography has proceeded far enough in the United States. In no country has it been carried to such an extent, or been attended with more disastrous consequences. This pernicious system was commenced under the eminent auspices of Baron Humboldt, who, from a few excursions

\* See "Cretaceous Series," Geological Report.

† See Preliminary Report for area of cultivable land.



into Mexico, attempted to figure the whole North American continent. It has been followed by individuals to carry out objects of their own. In this way it has come to pass, that, with no other evidence than that furnished by a party of persons travelling on mule back, at the top of their speed, across the continent; the opinion of the country has been held in suspense upon the subject of the proper route for a railway, and even a preference created in the public mind in favour of a route which actual survey has demonstrated to be the most impracticable of all the routes between the 49th and 32nd parallels of latitude. On the same kind of unsubstantial information maps of the whole continent have been produced and engraved in the highest style of art, and sent forth to receive the patronage of Congress, and the applause of geographical societies at home and abroad, while the substantial contributors to accurate geography have seen their works pilfered and distorted, and themselves overlooked and forgotten. \* \* \*

"The plains or basins which I have described as occurring in the mountain system are not the Great Plains of North America which are referred to so often in the newspaper literature of the day, in the expressions, 'News from the Plains,' 'Indian Depredations on the Plains,' &c.

"The term 'Plains' is applied to the extensive inclined surface reaching from the base of the Rocky Mountains to the shores of the Gulf of Mexico and the valley of the Mississippi, and form a feature in the geography of the western country as notable as any other. Except on the borders of the streams which traverse the plains in their course to the valley of the Mississippi scarcely anything exists deserving the name of vegetation. The soil is composed of disintegrated rocks, covered by a loam an inch or two in thickness, which is composed of the exuviae of animals and decayed vegetable matter.

"The growth on them is principally a short but nutritious grass, called buffalo grass (*Sysleria dyctalooides*). A narrow strip of alluvial soil, supporting a coarse grass and a few cotton wood trees, marks the line of the water courses, which are themselves sufficiently few and far between.

"Whatever may be said to the contrary, these plains west of the 100th meridian are wholly unsuceptible of sustaining an agricultural population, until you reach sufficiently far south to encounter the rains from the tropics.

"The precise limits of these rains I am not prepared to give, but think the Red River (of Louisiana) is, perhaps, as far north as they extend. South of that river the plains are covered with grass of larger and more vigorous growth. That which is most widely spread over the face of the country is the grama or mezquite grass, of which there are many varieties. This is incomparably the most nutritious grass known."\*

#### AURORAS.

On the night of October 2nd, when camped on Water-hen river, an aurora of unusual brilliancy and character, even in these regions, surprised us with the varied magnificence of its display of light and colour. A broad ring of strong auroral light nearly encircled the pole star. It possessed an undulatory motion, and continually shot forth, towards and beyond the zenith, vast waves of faint light. They followed one another like huge pulsations—wave after wave—expanding towards the south with undiminished strength and continuing many minutes at a time. Suddenly the waves ceased, the luminous belt or ring increased in brilliancy, lost its regular form, and here and there broke into faint streamers of a pale yellow colour. The streamers rapidly increasing soon reached the zenith, and finally meeting beyond it, shot forth from the luminous arc with swift motion and in rapid succession. Their colour varied from straw to pink. The display of streamers is quite common in this part of the continent. The waves are also not unfrequently seen; but none of the half-breeds or the Indians, whom we saw a few days afterwards, had ever witnessed such a brilliant spectacle as the heavens presented during the early part of the night, when the immense pulsations, 14° to 20° in breadth, and expanding in their apparent ascent from east to west, rolled in tranquil, noiseless beauty, through the heavens overhead.

At 10 p.m., on the 27th of October, when camped on the shores of Lake Manitobah, near Oak Point, a half-breed awoke me to witness a crimson aurora of surprising magnificence. Unfortunately, a few clouds were flitting athwart the sky, which prevented the centre arc from being visible, but perhaps they increased the depth of the colour. The light was generally steady at the edges of the clouds. The appearance of streamers was recognized only in the clear portions of the sky and above the clouds, where the rose or crimson tints were much fainter. It reminded me of the reflection of a vast prairie on fire; the deep rose and crimson tints lasted for half an hour; then gave way to white and straw-coloured streamers, occasionally tinged with pale emerald green.

Coloured auroras are not unfrequently seen during the summer months, but they rarely possess the extraordinary beauty of those which have just been described. These beautiful "dancing spirits of the dead" impart a solemnity and charm to the still night, which must ever remain one of its most delightful characteristics in these regions.

Lake Huron, always attractive in calm summer weather, was peculiarly beautiful on the evening and night of the 25th of July 1857, during our first voyage to Red River, when lighted up by a magnificent aurora, as we neared the small Manitoulin Island. The auroral streamers converged beyond the zenith. Its base was marked by a very abrupt and well-defined sheet of light, from which waves and streamers rose from time to time. Masses of light moved continually from west to east, with an undulatory motion, occasionally folding and unfolding, with great regularity and distinctness of outline. A few minutes after 10 o'clock the base of the moving folds was tinted with delicate rose colour, passing, by imperceptible gradations, into faint emerald green above. The calm surface of the lake reflected these delicate colours, and the ever-varying motions of the auroral streamers and waves. The

\* Report on the United States and Mexican Boundary Survey, made under the direction of the Secretary of the Interior, by William H. Emory, Major First Cavalry and United States Commissioner. Washington, 1846, pp. 43-47.

afternoon had been warm, with a fresh south-west breeze, and a thin haze in the same direction over-spreading the high shores of the Grand Manitoulin Island.

The beautiful spectacle presented by this aurora led to the description, hitherto unpublished as far as the narrator was aware, of a spectacle of extraordinary magnificence which had been witnessed by one of our fellow-travellers, a post-captain in the English Navy, who was making the tour of the Grand Lakes. This gentleman described his ascent to the summit of the Peak of Teneriffe, for the purpose of seeing the sun rise above the waters of the Atlantic from that imposing elevation. At the moment when the red light of the sun began to flash above the unruffled outline of the horizon, overcome with emotion at the splendour of the scene, he turned away to seek a momentary relief in the grey of the west: but unbounded astonishment and admiration seized him, on beholding, instead of a grey blank, a gigantic image of the Peak projected on the sky to the full height of  $40^{\circ}$ , and swiftly sinking into the ocean as the sun rose above its eastern outline.

Colonel Lefroy, in 1843 and 1844, enjoyed many excellent opportunities of witnessing auroras in Rupert's Land, at Fort Chipewyan, Lake Athabasca, latitude  $58^{\circ} 43'$  north, longitude  $105^{\circ} 35' 15''$  west, and Fort Simpson, latitude  $61^{\circ} 51' 7''$  north, longitude  $120^{\circ} 5' 20''$  west.

The following extracts from the "Magnetical and Meteorological Observations"\* at those places contain the results of much valuable experience on points of great interest connected with the display of this beautiful phenomenon. They are followed by some extracts from Sir John Richardson's "Meteorological Observations at Fort Confidence, on Great Bear Lake," latitude  $65^{\circ} 54'$  north, and longitude  $118^{\circ} 49'$  west, relating to the same subject. The extracts have reference to the supposed altitude of auroras, their connexion with the atmosphere, the sound produced by them, and the connexion of aurora with magnetic disturbance.

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*Extracts from Colonel Lefroy's Meteorological Observations.*

ALTITUDE.

"For want of corresponding observations elsewhere, there are no data for computing the height of any of the displays, but I avail myself of this opportunity of stating that the impression conveyed to the senses upon many occasions was altogether opposed to the idea of the seat of the display being so distant as it seems to be in lower latitudes."—*Captain (now Colonel) Lefroy's Magnetical and Meteorological Observations at Lake Athabasca and Fort Simpson*, page 141.

CONNEXION WITH THE ATMOSPHERE.

"If the region in which the auroral development takes place be entirely beyond the limits of the atmosphere, as is commonly supposed, it is difficult to conceive any direct connexion between the aurora and the state of that medium; but this question may perhaps be regarded as not finally settled, and it may be worth while to examine the accompanying meteorological features. The first which will be noticed on referring to the meteorological register is the apparent connexion between the occurrence of aurora and a state of calm."—*Ibid.*, page 146.

SOUND.

"With regard to the much disputed question of sound, neither the writer nor his assistant were ever positive of hearing any, but the latter thought that he did so on one or two occasions. The result of inquiries upon the subject was, that opinions were nearly equally divided among the educated residents of the country. A small majority of those the writer consulted agreed that a sound sometimes accompanied the phenomenon; but among the uneducated and native inhabitants, whose acuteness of sense is probably much superior to that of the other class, a belief in the sound is almost universal, and many individuals assured the writer that they had heard it. Similar testimony has been borne very positively by the assistant at the Observatory of Toronto, upon one or two occasions of great display."—*Ibid.*, page 151.

CONNEXION OF AURORA WITH MAGNETIC DISTURBANCES.

"A little experience in North America, whether in Canada or in the more northern regions, suffices to correct the impression that every display of aurora, however inconsiderable or distant, is attended by sensible magnetic disturbance. \* \* \* On the other hand, it is unquestionable that the more brilliant displays are almost always attended by magnetic disturbances, as are indeed many of the more moderate ones. Exceptions in the first class are very rare, but the writer believes that some can be established. The general conclusion must, however, be, that an intimate relation exists between these distinct phenomena, although not that of cause and effect."—*Ibid.*, page 151.

*Extracts from Sir John Richardson's Meteorological Observations.*

ALTITUDE AND DISTANCE.

"Several times during the winter the auroral light was seen, both by myself and Dr. Rae, to pass us in front of a mass of cloud. As we were both aware of the ease with which the eye may be deceived in such observations, we watched the displays of the phenomenon with sufficient scepticism to keep the attention on the alert, and no doubt remained on our minds of the reality of the fact. In former years I had seen similar occurrences more frequently and even more manifestly. Thirty years previously I had entertained the belief that the aurora was connected with the formation of cloud, and other changes in the constitution of the atmosphere, and the nightly observations of this winter, all tended to strengthen that opinion."—Page 329.

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\* Magnetical and Meteorological Observations at Lake Athabasca and Fort Simpson, by Captain [now Colonel] J. H. Lefroy, R.A., and at Fort Confidence on Great Bear Lake, by Sir John Richardson, C.B., M.D. Printed by order of Her Majesty's Government. London: Longman.



## SOUNDS.

"With respect to sounds of the aurora, the belief prevails in the arctic regions that it is occasionally audible, when very bright and active, at which times it is believed by the natives to be near the earth. Having witnessed the phenomena some thousands of times without hearing it, I have become sceptical of it ever producing sounds audible on the surface of the earth."—Page 380.

## CONNEXION OF THE AURORA WITH MAGNETIC DISTURBANCES.

"On a review of the observations made during the seven months, many instances of the simultaneous occurrence of the fluctuations of the needle with movements in the auroral light were noticed; but there were also examples of fluctuations of the needle in the absence of the aurora, and very numerous ones of brilliant auroras accompanied by a stationary or sluggish needle. I cannot, therefore, venture to ascribe the movements of the needle in any case to those of the aurora, or to any particular directions of the beams and arches. I think, however, that the needle varied more frequently during the sudden formation of clouds than at other times; and I am also inclined to say, that the formation of clouds often followed brilliant and active auroras. It is a popular belief in the fur districts that very fine displays of the aurora presage windy weather."—Page 350.

## THE TWILIGHT BOW.

One of the most beautiful celestial phenomena visible after sunset and before sunrise from the north-western prairies is the twilight bow. The extraordinary clearness of the nights during summer in this region offers a very favourable opportunity for witnessing the delicate colouring which is communicated to the lower atmosphere by the reflected light from the upper illuminated portions. As the appearance of the twilight bow is dependent upon the serenity of the atmosphere to a great degree, its occurrence is not frequently observed or recorded in this country:

The twilight bow and the causes which produce it are thus described by M. Bravais :\*—"Immediately after the setting of the sun the curve which forms the separation between the atmospheric zone directly illuminated by the sun, and that which is only illuminated secondarily, or by reflection, receives the name of the *crepuscular curve*, or *twilight bow*. Some time after sunset this bow, in traversing the heavens from east to west, passes the zenith; this epoch forms the end of civil twilight, and is the moment when planets and stars of the first magnitude begin to be visible. The eastern half of the heavens being then removed beyond solar illumination, night commences to all persons in apartments whose windows open to the east. Still later the twilight bow itself disappears in the western horizon; it is then the end of the astronomic twilight; it is closed night. We may estimate that civil twilight ends when the sun has declined  $6^{\circ}$  below the horizon, and that a decline of  $16^{\circ}$  is necessary to terminate the astronomic twilight."

I often observed the twilight bow to be tinged with a delicate rose colour, passing into straw colour, and then into faint emerald green. The line of demarcation between the bow and the illuminated portion of the atmosphere was often very well defined, quite as clearly as in a secondary rainbow. It appeared most brilliant at an altitude of  $60^{\circ}$  or  $70^{\circ}$  above the horizon. It descended slowly towards the boundless level, preserving apparently with considerable exactness the form of a parabola. When the twilight bow is best developed the aspect of the prairie is very singular. Towards the east it is cold, cheerless, and gloomy; towards the west it is warm, inspiring, and suggestive of pleasant thoughts and cheerful anticipations. No wonder the prairie Indians associate delightful dreams of happy hunting grounds with the setting sun and the beautiful west. They delight to sit silent and thoughtful "in the glory of the sunset," and allow themselves to be transported in imagination—

"To the islands of the blessed,  
To the kingdom of Ponemah,  
To the land of the hereafter."

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\* *Annuaire Météorologique de la France* for 1850; quoted by L. W. Meek in the *Smithsonian Report* for 1856.

ITINERARY.

(I.)

FROM FORT GARRY SOUTH-WESTWARD TO THE 49TH PARALLEL, VIÂ THE ASSINNIBOINE AND THE LITTLE SOURIS.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 1	June 14, 1858.—Commenced exploratory survey. Encamped on the prairie. Good pasturage - - - - -	0-00	0-61
No. 2	June 15.— <i>Lane's Post</i> .—Pursued a good trail through a fertile country, partially settled. Fine prairies adapted for grazing and agriculture. Clumps of poplar. Heavy timber in the bays of the river. A detachment branched off at St. James' church to make a reconnaissance of the Big Ridge, from Stony Mountain to Prairie Portage - - - - -	24-00	24-61
No. 3	June 16.—An attempt to survey the Assinniboine up-stream in canoe had to be relinquished, in consequence of the swiftness of the current. Replaced canoe on a cart, and proceeded 15 miles further. Camped at a stagnant pool in the shelter of a bluff of poplar. Good grass. Heavy timber skirting the river - - - - -	16-00	40-61
No. 4	June 17.— <i>Prairie Portage</i> .—By making an early start, <i>Prairie Portage</i> was reached at 1 p.m. Crossed a level prairie, with rich soil and herbage, but nearly destitute of trees. The detachment from Stony Mountain arrived in the afternoon. Good grazing - - - - -	19-50	60-11
"	June 18.— <i>Prairie Portage</i> .—Occupied in repairing carts, completing equipment and making preparations to enter the Sioux country. Made a transverse section of the river, and levelled to determine its fall. Heavy thunder showers during the day.		
No. 5	June 19.— <i>The Bad Woods</i> .—Being unable to keep pace with the train, after entering the Bad Woods, observations with the micrometer had to be suspended, and the survey continued with the ordinary instruments for the trail and for reconnoitring. Correcting—by frequent observations—the main track distances determined from the verified mean rate of the wheeled vehicles. The position of prominent points established by cross bearings. Plenty of wood. Animals watered in the Assinniboine. Pasturage light and scanty - - - - -	15-00	75-11
No. 6	June 20.—At the Half-way Bank, overlooking the valley of the Assinniboine, $7\frac{1}{2}$ miles from last camp, the latitude of $49^{\circ} 46' 19''$ was observed. Height of bank, 150 feet above river. Breadth of valley, one mile. Magnetic variations $13^{\circ}$ E. Camped at 7 p.m., among sand dunes, from the summit of which Pembina Mountain near St. Joseph's was seen. Terrific thunderstorm after sunset. Water in ponds. Herbage short and stunted. Light sandy soil - - - - -	15-00	90-11
No. 7	June 21.—Trail continues among sand dunes, ponds, scattered poplars and willows. Reached Bear's Head Hill, the highest peak of the sand hills about noon, and halted to allow the animals to graze. Before resuming journey, a thunder and hailstorm came on. The hailstones ( $1-1\frac{1}{2}$ inches in diameter) cracked the bark of the canoes on the carts. After proceeding a few miles, another violent thunderstorm compelled a camp at Sunset Lake. Good grazing only in detached areas - - - - -	15-80	105-91
No. 8	June 22.—Trail still winds around sand hills and between ponds, varying from two to thirty chains in diameter. Smokes have now to be made for the animals at every camp. Mosquitoes and bulldogs so annoying as to prevent them from feeding. The great heat of the weather during the day exhausts the animals and retards progress. A terrific thunderstorm lasting from $\frac{1}{2}$ to 4 to 6 p.m., rendered an early camp necessary. Lightning very near and vivid. Incessant roar of thunder for an hour and a half. Plenty of water in lakelets. Grass light. Spruce and aspen on the sand hills - - - - -	13-22	119-13
No. 9	June 23.—Observed for latitude, &c., at Pine Creek crossing, 130 miles from Fort Garry. A division followed Pine Creek from the cart trail to the Assinniboine, returning by the Devil's Hills (dunes of drifted sand). Still traversing sand dunes, with occasional intervals of light prairie : and grassy areas, between clusters and ranges of sand hills from 30 to 70 feet high, dotted with stunted oaks, and thinly clothed with small balsam spruce and poplar on their flanks. Country improves and passes gradually into rolling prairie, after leaving the old Brandon trail. Grazing improved - - - - -	25-75	144-88



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 10	<i>June 24.</i> —Directed course towards the Assinniboine and Souris Forks, reaching the Assinniboine opposite the mouth of the Little Souris, 146 miles from Fort Garry at 5:40 a.m. Halted to make observations, graze the animals, and breakfast. Warned this morning to prepare for an attack by the Sioux. The smoke of two fires in the valley of the river indicating their presence. Grasshoppers very numerous and destructive to baggage and harness. Effected the crossing of the Assinniboine, after completing observations; swimming the horses, ferrying the baggage in canoes, and towing the carts and waggon over. Proceeded up the left bank of the Souris; camping four miles from its mouth. Mounted guard during the night to avoid a surprise by the Sioux - - - - -	5:00	149:88
No. 11	<i>June 25.</i> —Heavy showers of rain early this morning prevented the carts from advancing at the usual hour. Observed for latitude at a small affluent of the Souris. Camped at sunset on the banks of the Souris valley, between the Blue Hills of Brandon and the Blue Hills of the Souris. Valley very deep and broad. Scenery wild and picturesque. Good track over a rolling prairie. Soil, sandy loam. Precautionary measures continued. Herbage rich in the valley and in most of the hollows - - - - -	15:50	165:38
No. 12	<i>June 26.</i> —Terrific thunderstorm last night, accompanied by boisterous wind and heavy rain. Remained at preceding camp the greater part of the day, in order to refresh the horses and make geological examinations and sketches in the valley. Resuming march at 4 p.m., travelled over two hours and camped at a beautiful point in the Souris valley, opposite Back Fat Creek, a tributary rising in the Back Fat Lakes, from which the North Branch of Pembina River also issues. Crossed a rolling prairie of light sandy loam, with occasional stony ridges and small lakes. Obtained a magnificent view of the boundless, south-western prairies, with Turtle Mountain in the distance, before descending into the valley. Men and animals suffer much from the attacks of mosquitoes surrounding them in clouds - - - - -	6:75	172:13
No. 13	<i>June 27.</i> —Struck camp at noon, having made the requisite observations and levelled across the valley. Traversed an undulating prairie with gravelly knolls crested with erratics at intervals. A few hummocks of small poplar along margin of valley. Herbage short and scanty on the high ground, rich and exuberant on the low ground and in the alluvial bottoms - - - - -	8:25	180:38
No. 14	<i>June 28.</i> —Striking camp and advancing at daylight, a halt was made at 8 a.m. to breakfast and to examine the shales exposed in the valley. Proceeded down river a short distance in canoe. The Souris is here 1-1½ chains broad and 2½-3 feet deep, with a swift current. Camped at 8 p.m., after journeying along the crest of the valley, over a light prairie with occasional areas of rich dark soil. Cold and stormy day. Strong north wind. Rain. Grazing good - - - - -	12:50	192:88
No. 15	<i>June 29.</i> —After crossing Plum Brook or Snake Creek and halting to graze the animals at Snake Hill, layers of drift tertiary coal or lignite were discovered in the bank of the Souris. Engaged during the remainder of the day in sinking shafts and exploring for lignite in this locality. Made camp fires of lignite. Wood and water abundant - - - - -	15:05	207:93
„	<i>June 30.</i> — <i>Snake Hill.</i> —Still occupied in excavating for lignite, making sections and observations. Three men despatched to Oak Lake, to hunt with a view to save provisions, returned in the evening with a number of ducks and pelicans. Grazing tolerably good. Plenty of wood and water.		
No. 16	<i>July 1.</i> —Struck camp and started train at daylight. Halted for dinner at an old log house on the banks of the Souris, a winter Trading post of the Hon. Hudson's Bay Company. Crossed the "Round Plain" in afternoon, a beautiful grassy area about four miles in diameter, level as a bowling green, and surrounded by thinly wooded sand hills. Camped on a level plain, supporting luxuriant grass. This plain was flooded in 1852 to a considerable depth, and occupies an area of about a mile in width between the Souris and a range of low sand hills - - - - -	23:37	231:30
No. 17	<i>July 2.</i> —Tents struck and brigade equipped for the march at 4 a.m. Traversed an undulating treeless prairie extending to Turtle Mountain on the left. Crossing Half-way Creek, and several deep gullies carrying the prairie drainage into the Souris, the train halted at Mandan Creek, another small affluent, so called from the numerous mounds or tumuli near its mouth, said to have been underground houses of the Mandan Indians. A careful examination of the tumuli was made by digging into them, but no vestiges of Indian remains were found. Camped on the banks of Red Deer's Head River, near its confluence with the Souris. Two sets of astronomical observations determined the latitude of this station to be 49° 1' 44", or a fraction over two statute miles north of the international boundary, and in about 100° 55' west longitude. Magnetic deviation, 16° 53' E. Good grazing, wood, and water in the valley. Track of Sioux observed - - - - -	26:25	257:55

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 18	<i>July 3.</i> —Remaining encamped till afternoon to make observations as well as to repair the carts and travelling gear, a detachment with an escort was enabled to make a reconnaissance of Red Deer's Head River to its mouth. All having returned to camp, the horses were harnessed and the journey resumed by the train at 5 p.m. Striking in a S.W. direction, across an undulating prairie strewn with buffalo dung and scored with their tracks, a distant point of Red Deer's Head River within United States Territory was reached about 8·30 p.m., and a camp formed near a clump of trees growing on the margin of the river, with a view of taking in a supply of wood to be used as fuel in crossing the great treeless prairie lying between the boundary line and Fort Ellice. Some hostile Sioux in ambuscade in the vicinity of the encampment, attempting to stampede the hobbled horses after dark, showed the necessity of increased precaution and vigilance. The animals were accordingly picketed within the camp ring, and the number of watchers increased to eight. Traversed before camping a vast sandy plain with short and scrubby grass, burnt last year - - - -	10·25	267·80

(II.)

FROM RED DEER'S HEAD RIVER—A FEW MILES SOUTH OF THE INTERSECTION OF THE BOUNDARY LINE AND THE LITTLE SOURIS—NORTHWARD TO FORT ELlice.

Camp.		Main Track, distance from—	
		Preceding Camp.	Red Deer's Hd. River.
		St. Miles.	St. Miles.
No. 19	<i>July 4.</i> —Sioux heard by the watch during the night, and the tracks of their scouts observed in close proximity to the encampment this morning. Sufficient wood being distributed among the vehicles to last during a passage of five days across the great treeless prairie between this station and Fort Ellice and camp being broken up at 10 a.m., the train wended its way in a northerly direction for about three hours across a light sandy prairie, dotted everywhere with bleached buffalo bones; and halted about three hours at a small pond with a margin of marsh. The animals being much fatigued by the excessive heat of the weather, only six miles farther were accomplished - -	13·95	13·95
No. 20	<i>July 5.</i> —Breaking up camp at daylight, the train was in travelling order and advanced at 4·30 a.m. Traversed a level plain with small gravelly knolls and low ridges at intervals. Soil generally light sandy loam. Grass short and scanty. Plenty of water in marshes, ponds, and stagnant creeks. No wood of any kind as far as the eye can reach. <i>Bois de vache</i> rarely seen. Saw several antelopes and shot a female to-day. Camped at sunset - -	23·00	36·95
No. 21	<i>July 6.</i> —Up at dawn. Train in motion about 4 a.m. Halted at Pipestone Creek for breakfast, having accomplished 13·78 miles, after five hours' travelling across a light sandy prairie with low knolls and ridges of gravel and boulders. Remaining here to determine the latitude and being delayed some time in fording the stream, owing to the steepness and miriness of its banks, the train did not get under way again till 2 p.m. Traversed a rolling woodless prairie with hard gravelly soil, supporting a scanty growth of grass, and camped at Boss Creek, a small affluent of the Assiniboine, flowing in a broad valley among low hills and knolls with gentle slopes. Standing Stone Mountain, Boss Hill, and Oak Lake were seen from a conical hill near the encampment - - - -	23·40	60·35
No. 22	<i>July 7.</i> —Horses caught, unhobbled and ready for the march early. Train left camp site at 5 a.m. Crossing a level plain and fording Boss Hill Creek, a halt was made at a stagnant brook, after traversing a light sandy and gravelly prairie with short herbage. Thence journeying over a rolling prairie with very light soil, in many places covered with boulders and supporting occasional hummocks of poplar and willow, partially burnt, the Assiniboine was reached, a camp pitched at a small affluent, and the animals turned loose to graze a little after 4 p.m. - - - -	19·70	80·05
No. 23	<i>July 8.</i> —Tents struck at 3, and the train advancing at 4 a.m. Halted to skin and cut up a buffalo bull "run" and shot this morning. Resuming march at 11 a.m., and crossing a rough prairie with hard gravelly soil covered with erratics, the Two Creeks (tributaries of the Assiniboine) were reached about 3 p.m. Having forded the creeks and camped, the remainder of the day was occupied in examining and searching for fossils in the shales exposed in the valley - - - -	10·87	90·92



Camp.		Main Track, distance from—	
		Preceding Camp.	Red Deer's Hd. River.
		St. Miles.	St. Miles.
No. 24	July 9.—Striking tents early, the horses were caught, and the train, with the exception of one cart, equipped for travel at 2:45 a.m. The ox although hobbled, could not be found, and three of the party, accompanied by the waggon and driver, hastened on to Fort Ellice, leaving the train to follow after recovering the ox, which was accomplished after a search of seven hours. Crossed an undulating prairie extending to the Assinniboine, with light sandy soil, except in the hollows, where a thin coating of vegetable mould is found. Halted to camp at a gully with stagnant water in the bottom, leading to the Assinniboine. Grass abundant and rich in the depressions. Plenty of water and wood. Buffalo seen again to-day - - - - -	15:88	106:80
No. 25	July 10.—Fort Ellice.—Starting at 3 a.m., Fort Ellice was reached early. Before fording Beaver Creek, a level prairie, with soil of light, sandy loam was crossed. The monotony of the plain relieved here and there with clumps of light poplar and low sandy hills. Between Beaver Creek crossing and the fort a well-beaten track passing over a sandy plain and hills or dunes of white sand were traversed - - - - -	10:90	117:70
„	July 11.—Fort Ellice.—Encamped within half a mile of the fort. Remained quietly incamped to day, (Sunday,) much to the advantage of the wearied animals. Engaged at noon and at night in determining astronomically the position of this station by different sets of observations. Thunderstorm and rain in the afternoon		

(III.)

FROM FORT ELLICE WESTWARD TO THE QU'APPELLE MISSION.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
		St. Miles.	St. Miles.
No. 26	July 12.—Having completed observations, reconnoitred Beaver Creek to its junction with the Assinniboine and made a traverse of about 4 miles north of the fort to obtain a section of the Qu'Appelle River at its mouth, the Fort Ellice encampment was broken up and the train proceeded westward about 5 p.m. Went into camp at 7:30 p.m. after traversing a light sandy prairie with occasional clumps of small poplar, and several marshes and ponds - - -	7:50	7:50
No. 27	July 13.—Camp struck at daylight and train advancing at the usual hour. Traversed an undulating prairie of light sandy loam with scattered clumps of poplar and willow. Halted to feed after travelling nine miles. Thence journeyed over a rolling prairie of rich sandy loam, clothed with an exuberant growth of excellent grass. Another halt was made at the Cross Woods, an open belt of light aspen reported to extend from Qu'Appelle River to Pipestone Creek. Camped at sunset in a region of marshy ponds surrounded by light prairie. Terrific thunderstorm just before dark—continued some hours - - - - -	25:50	33:00
No. 28	July 14.—Started at 4 a.m., and traversed a light rolling prairie with gravelly ridges thinly wooded with scattered aspens, succeeded by a wide treeless plain of rich sandy loam. A halt was made for breakfast at a bluff of poplar, after accomplishing a distance of 12 miles. Continued the journey across an undulating prairie of light sandy loam, with occasional clumps of small poplar and many ponds. Camped late, at the beginning of a vast treeless prairie stretching north to the Qu'Appelle. A cold windy, disagreeable day. Peals of thunder heard overhead in the morning. Detained some time by rain - - - - -	23:00	56:00
No. 29	July 15.—Rose at 3 a.m. and resumed the journey westward across a light undulating open prairie, succeeded by a treeless rolling prairie, in the middle of which, finding some sticks of wood dropped by Indian hunters, the train stopped to graze the animals and breakfast. Dined at the Weed or Bear Berry Ridge, and camped at sunset on an undulating prairie, with clumps of poplar and willows. Soil of prairies traversed to-day generally light with gravelly ridges. Areas of rich loam with good grass in the depressions. Abundance of water in numerous ponds dotting the plain. Wood scarce. Trail runs parallel to the Qu'Appelle at a distance of 12-16 miles. Cold and cloudy in morning. Strong N.W. wind - - - - -	26:55	82:55
No. 30	July 16.—Camp broken up at 3:15 a.m., and train en route before 4 a.m. Halted after 12 miles travel over a vast treeless rolling prairie, with soil and herbage as before. From this station on an open plain, the woods of the Qu'Appelle 12-18 miles off could be seen. Proceeding westward over a sandy prairie, among clumps of poplar and willow, the "Indian Head Hills"		

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
		St. Miles.	St. Miles.
No. 31	were reached and crossed about noon. Finding on the west side of the hills an encampment of half-breeds journeying from Qu'Appelle Mission to Fort Ellice, an opportunity was afforded for exchanging two horses almost worn out, for fresh ones. After passing the Qu'Appelle Fort trail, the course lies over a light treeless undulating prairie, sloping gently towards the Qu'Appelle, and intersected by several creeks flowing in deep valleys. Camped at sunset. Plenty of wood, water, and grass. Mosquitoes in clouds and unusually troublesome in the evening - - -	26·62	109·17
	July 17.—Horses driven into camp, unhobbled, and equipped for travelling at 3 a.m. Train departed from camp at 3·40 a.m., and journeyed till 7 a.m., stopping at a point where the party met yesterday left some wood, on a vast level prairie, with dark rich soil, bearing luxuriant grass. Met a half-breed and Indian family on the plains, gathering and drying “wild turnips” for winter provisions. Crossed a light undulating prairie with many knolls, ridges, and marshy ponds, and reached the Church of England Missionary Post at the Fishing Lakes, Qu'Appelle Valley, just before sunset. Forded the Qu'Appelle, and camped on north side of valley - - -	26·40	135·57
	July 18.— <i>Qu'Appelle Mission</i> .—To-day being Sunday, all except those left in charge of the encampment attended Divine service, conducted by the Missionary (the Rev. James Settee,) in his log house. The tired animals much benefited by the rest and the good grazing in the valley. Thunderstorm at night, with violent showers of heavy rain.		
	July 19.— <i>Qu'Appelle Mission Encampment</i> .—Engaged last night and to-day in making the usual observations for latitude and variation, triangulating to establish the position of prominent points, making a section of valley, levelling river, taking photographs, and preparing for canoe voyages up and down the Qu'Appelle.		

(IV.)

FROM THE QU'APPELLE MISSION WESTWARD TO THE ELBOW OF THE SOUTH BRANCH OF THE SASKATCHEWAN, VIA THE QU'APPELLE RIVER AND VALLEY.

Camp.		Main Track, distance from—	
		Preceding Camp.	Qu'Appelle Mission.
		St. Miles.	St. Miles.
No. 32	July 20.—Broke up Qu'Appelle Mission encampment at 3 a.m., and commenced the ascent of the Qu'Appelle River in canoe after the following divisions were <i>en route</i> . A detachment with three carts to proceed to Fort Pelly, after making a detour to Long or Last Mountain Lake, another, with three carts, to proceed along the south side of the Qu'Appelle valley, to meet the canoe division at the Grand Forks of the river, and a third to proceed down the Qu'Appelle in canoe to Fort Ellice, thence by land to Fort Pelly. Embarked in a three-fathom birch bark canoe (brought from Red River), manned by two voyageurs, and passed through the third and fourth Fishing Lakes. Camped after 18 miles paddling, five of which were against the current of the river, meandering through a marsh before debouching into lake No. 4 - - -	18·00	18·00
No. 33	July 21.—Little rest obtained in camp last night, the swarms of mosquitoes and sand flies being annoying beyond measure. Rising at 3, and embarking at 4 a.m., the journey was resumed. The rate of progress against the current of this tortuous river being slow, one of the party proceeded to make a reconnaissance of the valley on foot, whilst the other continued the survey of the river in canoe, ascertaining the rate of current and canoe by log. Delayed by a heavy rain for three hours after halting at 2 p.m. The hill sides of valley, which are upwards of 300 feet high, were ascended at intervals. Sailed and tracked up the river till 8·40 p.m., some time after dark, and camped - - -	19·16	37·16
No. 34	July 22.— <i>En route</i> early. Tracking and paddling alternately against a tortuous muddy stream. Having halted to dine and ascend the sides of valley, an altitude of 3–400 feet, to examine the prairie beyond, a violent thunderstorm coming on prevented re-embarkation for a considerable time. Tracked and paddled till sunset. Camped on the south side of the valley surrounded by clouds of mosquitoes. The river is so tortuous that to-day no fewer than 200 courses and distances were recorded in canoe - - -	4·00	51·16
No. 35	July 23.—The Qu'Appelle still meanders through rich alluvial flats, clothed with long rank grass. Its serpentine course from side to side of the broad		



Camp.		Main Track, distance from—	
		Preceding Camp.	Qu'Appelle Mission.
		St. Miles.	St. Miles.
No. 36	valley is clearly marked by a close margin of tall willows. Made an early start, proceeding up the river and valley as heretofore. Joined the carts that were in waiting at the appointed rendezvous, and encamped not far from the Forks in company with a band of Indians—"Bungays" * <i>July 24.</i> —Thunderstorm early this morning. The tortuosity of the river and the strength of its current retarded progress so much that it was decided to continue the exploration by land. The canoe was accordingly replaced on a cart, and the course of the train directed up the valley. Ascended to the crest of the valley on the north side, and continued the journey for several hours along its margin over a light open prairie. Pitched camp at sunset on a grassy plateau on the hill side of valley. Cree Indians seen	14.32	65.48
No. 37	<i>July 25.</i> —The morning occupied in ascertaining the dimensions of the valley. The measurement from bank to bank ( $1\frac{1}{4}$ miles) shows that the width of this great excavation is well maintained, and the height of the bank computed from observations with the sextant indicate but little diminution in depth. Visited by Crees. Proceeded on the brink of the valley, over a slightly undulating prairie of light sandy and gravelly soil, with poor, short grass. Halted at a deep ravine, affording wood and water. The trail of the train leading occasionally some distance into the prairie in order to head the deep gorges and ravines ramifying from the valley, rendered it necessary to make detours from the main track at intervals to obtain a more complete reconnaissance. Camped late at a small pond a mile west of the Round Hill, after crossing a rolling prairie of light sandy soil. Unable to make fire, there being neither wood nor <i>bois de vache</i> in the vicinity. Herbage scrubby and scant	13.43	78.91
No. 38	<i>July 26.</i> —Started at daybreak. Came suddenly upon an encampment of Crees, numbering five skin tents, on the edge of the valley, near the eastern extremity of Buffalo Pound Hill Lake. The inmates were not up, but the baying of their dogs at our abrupt appearance soon aroused them. Pursued the trail over a light undulating prairie along the margin of the valley. Stopped for a short time without unyoking at Buffalo Pound Hill, a conical elevation at the west end of the lake of the same name, from which the Touchwood Hills, the "Outlook," and the Grand Coteau de Missouri can be seen. These and other prominent points were connected at intervals by numerous cross bearings. Halted near the Outlook Hills on a rolling gravelly plain, with stunted grass. Wood, water, and some good grass obtained in the gullies. Passed another Cree encampment after some hours travel over an undulating sandy prairie. The tents (nine in number) were at the head of a broad ravine filled with poplars. After a little delay in distributing tobacco, powder, and ball, and bartering for Mesaskatomina berries, the journey was continued and camp pitched a little after sunset. Watch appointed to prevent the Crees from stealing the horses. Camp fires of buffalo dung	21.85	100.76
No. 39	<i>July 27.</i> —Camp struck at daylight and train <i>en route</i> at 4 a.m. The numerous deep gorges and ravines breaking the continuity of the valley side rendered many deviations from a direct course necessary. Traversed a very light sandy prairie strewn with boulders, and halted on the brink of the valley at the east end of Sand Hill Lake. Soon surrounded by Crees, who had galloped across the valley from their encampment on the opposite side on getting the first glimpse of the train. Whilst a "talk" was going on between our guide and the chief of this band, the height of the prairie plateau above Sand Hill Lake was ascertained by levelling, and the width of the valley by measurement. Gave the chief some tobacco and ammunition to distribute, and procured his son as a guide to the "River that turns," and the Saskatchewan. Crossed the valley, which is dry here at this season, and camped not far from the Indian lodges. Grazing poor. Wood and good water very scarce. Buffalo seen twice to-day	24.52	125.28
No. 40	<i>July 28.</i> —Left camp site at the usual hour. The train pursued a course over a sterile, stony, buffalo plain, thickly dotted with <i>bois de vache</i> , and halted early to wait for the return of a division that had branched off to make a reconnaissance of the Eyebrow Hill and Ridge. Indifferent grass and no water, but a supply was obtained for cooking by catching the rain which fell in torrents at noon. A traverse was made on horseback to the west end of Sand Hill Lake, and the exploration continued along the brink of the valley, whilst the carts followed the trail heading the ravines, till reaching a tributary rising in Eyebrow Hill ridge. Camp pitched in the valley at the confluence of this affluent and the Qu'Appelle. The usual observations and levelling conducted here to obtain a section of the valley. Good grass on the flats. Water and a limited supply of wood. Flies tormenting as usual	20.15	145.43
No. 41	<i>July 29.</i> —Struck camp and started early. The train recrossed the Qu'Appelle and proceeded along the foot of the northern slope until the mud flats	15.25	160.68

\* Crees and Ojibways of mixed origin.

Camp.		Main Track, distance from—	
		Preceding Camp.	Qu'Appelle Mission.
		St. Miles.	St. Miles.
No. 42	became too wet and springy for the animals. Ascended to the crest of the valley and pursued a circuitous course along its brink, among hills of white and yellow sand, quite loose and destitute of vegetation. Having crossed some feeble brooks rising in ponds among the sand hills, (feeders on this side of the great marsh filling the Qu'Appelle valley at the summit level, and sending its waters to the Assiniboine and the Saskatchewan,) a halt was made to determine the position, and make a thorough examination of the height of land. Being soon surrounded by mounted Crees, the train journeyed on to negotiate and parley with their chief Shortstick, who was impounding buffalo among the sand hills farther west, whilst a detachment retraced their steps to the height of land, to determine by levelling the elevation of the feeding marshes and ponds in the valley above the Saskatchewan. Encamped near the buffalo pound, surrounded by clusters of skin tents. Grazing very poor. Water scarce. Scrub poplar between the sand hills	8.40	169.08
	July 30.—Commencing operations at daylight this morning, the levelling was resumed, and the survey of the valley continued without intermission until closing upon the South Branch of the Saskatchewan at 5 p.m. Distance levelled 11.87 miles. Altitude of the summit-level pond (one of the sources of the Qu'Appelle and the "River that turns") above the Saskatchewan, 85.89 feet. The train reached the Saskatchewan early in the day, and all preparations were completed for a re-division of the party; the canoe gummed and equipped for a voyage down the South Branch, and the carts repaired for a journey to Fort à la Corne. The train having departed on its way northward, the canoe division embarked about sunset, and after 2.70 miles paddling camped on the right bank of the river	10.35	179.43 2.70
	To mouth of the "River that turns"	-	176.73

(V.)

FROM THE QU'APPELLE MISSION EASTWARD TO FORT ELLICE, VIA THE QU'APPELLE RIVER.

Camp.		Main Track, distance from—	
		Preceding Camp.	Qu'Appelle Mission.
		St. Miles.	St. Miles.
No. 43	July 20.—Embarked this morning in a 2½ fathom canoe with two voyageurs, and commenced the descent of the Qu'Appelle from the beginning of the portion of the river issuing from Fishing Lake No. 3. Obtained the dimensions of the connecting river at its mouth, and steered down the centre of Fishing Lakes 2 and 1, sounding at intervals with the hand lead. Measured the volume of water in the river at its exit from the east end of Lake No. 1. Pitched camp at sunset at the foot of the southern slope, 350 feet below the prairie level	-	25.26
No. 44	July 21.—Started at daybreak. Paddled till 3 p.m., when it became necessary to camp in consequence of a thunderstorm. The Qu'Appelle continues wonderfully winding, and meanders from side to side of its broad valley so often that the distance made by the river is far greater than that actually accomplished in a direct line	29.65	54.91
No. 45	July 22.—En route early. Moored canoe and took breakfast at an area of burnt grass, revealing land of good quality. Halted at intervals to determine the dimensions of the river and valley by the usual series of observations. A thunderstorm in the evening occasioned a detention of an hour and three quarters. Camped late	43.15	98.06
No. 46	July 23.—Struck camp and embarked at the usual hour, soon passing Pheasant Creek (called by the Crees <i>A his-koo-wi se-pi-sis</i> ), a small tributary rising in the Pheasant Hills some distance to the north. Entered Crooked Lake, <i>Ka-wa-wa-ki ka-mac</i> of the Crees, at noon. Sounded through the lake, and left it with some difficulty, its outlet being concealed by rushes. Continued paddling down the river, which maintains its uniform width of about 70 feet, and average current of 1½ miles an hour. Camped at sunset at the mouth of an affluent from the south, called <i>Ne-pi-me-na-ne Se-pi-sis</i> ; interpreted, Pembina, or Summerberry creek	27.78	125.84
No. 47	July 24.—Wet morning. Rain increasing; after three hours' paddling it compelled a halt of seven hours. Reached <i>Ka-wa-wi-ya Ka-mac</i> , or Round Lake, in the afternoon. Carried a line of soundings through it, as on the		



Camp.		Main Track, distance from—	
		Preceding Camp.	Qu'Appelle Mission.
		St. Miles.	St. Miles.
No. 48	other lakes, until arriving at the recommencement of the river. Thence glided down the river a distance of 2.43 miles, by its serpentine course, and camped at <i>Assini-pichi-pu-yakan</i> —the Stony barrier - - - <i>July 25.</i> —Embarked after the heavy rain ceased. Passed in a short time the mouth of a creek, falling in from the south, named <i>Isquao-wis-te quau-na-ha us-ta-ki</i> , or the creek where the Cree women's skulls lie. Camped late, after passing Little Cut-Arm Creek on the north, and Scissors Creek on the south,—small affluents with very long names in Cree. Swarms of insatiable mosquitoes and other venomous insects as usual - - -	25.93	151.77
No. 49	<i>July 26.</i> —Resumed the voyage at dawn. Passed, after two hours' travel, Great Cut-Arm Creek, another tributary from the north. Halted frequently, as before, to obtain the position of prominent points in the valley by intersecting bearings, and to examine the character of the prairies above. River extremely serpentine. Fine meadow grass on the flats. Flanks of valley and ravines timbered. Pitched camp at the usual hour - - -	33.13	184.90
No. 50	<i>July 27.</i> —Left camp at daylight. Passed some places where the whole valley is filled with trees, chiefly poplar, ash, elm, maple, and oak. Arrived at the Assinniboine River at sunset, and after making a section of the mouth of the Qu'Appelle proceeded to Fort Ellice and camped. To mouth of the Qu'Appelle - - - - -	33.81 37.88	218.71 256.59

(VI.)

FROM FORT ELLICE, NORTH WESTWARD, TO FORT PELLY AND SWAN RIVER, VIA THE WEST SIDE OF THE ASSINNIBOINE.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
		St. Miles.	St. Miles.
No. 51	<i>July 28.</i> —Occupied the greater part of the day in making preparations for a reconnaissance of the country between the Qu'Appelle and Swan River. Started in the evening from Fort Ellice, with a light equipment. Forded the Qu'Appelle three chains from its mouth, and ascending to the upper plateau pursued the trail skirting the Qu'Appelle valley till dark. Camped on a sandy area covered with creeping juniper. Grass scanty. Small poplar	4.41	4.41
No. 52	<i>July 29.</i> —Equipped for the trail and in motion at daylight. Followed the Qu'Appelle valley half a mile farther, then struck north-westerly through a woodland district with prairie intervals. Passed a large sandy knoll called Red Deer's Horn Hill. Halted after fording a creek of the same name. Traversed a rough and partially wooded prairie of light sandy soil before crossing Wolverine creek. Rested as usual at noon, near a conical hill named <i>Ne-pay-guy-we-nis</i> . Forded the Big Valley Creek, and camped about eight miles west of the Assinniboine. Wood and water in abundance. Luxuriant grass. Good land - - -		
No. 53	<i>July 30.</i> —Left camp early and followed the trail, winding between clusters of ponds, scattered over a level prairie, supporting straggling hummocks of poplar. Crossed another small tributary of the Assinniboine in the evening, and pitched camp beside a marsh. Wood and good water. Exuberant growth of willows and grass. Soil, sandy loam - - -	28.21	32.62
No. 54	<i>July 31.</i> —Struck camp and <i>en route</i> at the usual hour. Traversed a fine country with open groves of sapling poplar and most luxuriant vegetation before fording the Two Creeks. Upon fording Stony Creek and re-ascending to the prairie level a halt was made for the noon-day feed. Crossed an undulating country, succeeded by a flat tract, abounding in ponds and marshes, some of which impeded progress. In fording the Steep Creek a cart was upset, the crossing place being bad. Encamped among the Beaver Hills, three quarters of a mile beyond the Steep Creek - - -	24.12	56.74
No. 55	<i>August 1.</i> —Broke up camp and started in a very heavy rain. Followed a course through an entangled mass of vegetation skirting the Beaver Hills. Breakfasted in a pouring rain, after fording White Mud River, a rapid stream 70 feet wide and four feet deep. This crossing occupied some time, being very bad, and the banks of the river steep and slippery. Traversed a very level country, with surface soil of rich sandy loam, supporting clumps of small poplar, osiers, and a luxuriant growth of various plants. Reached the Assinniboine, after passing through some beautiful open woodlands. Forded the Assinniboine and encamped at Fort Pelly. Found the carts from the Mission here - - -	27.35 19.45	84.09 103.54

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
No. 55	<i>August 2.—Fort Pelly Encampment.</i> —Engaged during the day and at night in making the usual observations to determine the latitude and magnetic variation. Preparing for a traverse to Swan River.	St. Miles.	St. Miles.
"	<i>August 3.</i> —Started for Swan River a little after noon. Crossed Miry Creek and continued down the valley of Snake Creek to its confluence with Swan River. The trail led across La Course Creek and three others falling into Snake Creek. Stopped some time to ascertain the dimensions of Swan River and its fertile valley. Returned over a level country with a surface soil of sandy loam sprinkled with erratics. Hummocks of small poplar and spruce. A few tamarack.		
	To Swan River - - - - -	9.41	112.95

## (VII.)

FROM "THE RIVER THAT TURNS," NORTH EASTWARD, TO FORT À LA CORNE, VIA THE SOUTH BRANCH OF THE SASKATCHEWAN.

Camp.		Main Track, distance from—	
		Preceding Camp.	River that Turns.
(42)	<i>July 30.</i> —Launched canoe at the mouth of "The River that turns," and commenced the track survey of the Saskatchewan (S.B.) Descended the river for half an hour, and pitched camp in the vicinity of a rock exposure on the right bank - - - - -	St. Miles.	St. Miles.
No. 56	<i>July 31.</i> —Embarked early. The swift current of the river (three miles an hour) accelerated progress. River half a mile to three-quarters of a mile wide, but shallow where broad and much interrupted by sand bars and mud flats. Halted at noon to examine an exposure of sandstone. Passed large Cree encampments on both sides of the river, at an Indian crossing place. The Crees "pitching" eastward to avoid the Blackfeet. Mesaskatomina berries in great profusion. Camped at dusk - - - - -	- -	2.70
No. 57	<i>August 1.</i> —Left camp at the usual hour. Made a transverse section of the river upon halting to breakfast. Camped at sunset in the Moose Woods after some hours' paddling through intricate channels between large alluvial islands and flats. Good land on the flats wooded with ash, elm, and aspen. Buffalo seen floating in the river - - - - -	42.68	45.38
No. 58	<i>August 2.</i> —Passed, soon after embarking this morning, some old shanties of the half-breeds who come to the Moose Woods to barter with the Indians in winter. Halted occasionally and ascended to the brink of the valley to examine the country beyond, which generally consists of a rolling sandy prairie dotted with clumps of poplar. Recorded many sand bars, snags, and sawyers to-day, and one or two small rippling rapids. Had to moor canoe at 4 p.m., and seek shelter in consequence of a thunderstorm. Camped at 7 p.m. on a low stony point covered with driftwood - - - - -	34.52	79.90
No. 59	<i>August 3.</i> —Struck camp and embarked at daylight. Anchored once or twice to measure the rate of current. Found it to maintain an average velocity of three-and-a-quarter miles an hour. In the narrow places it is much swifter. Halted at noon to level along the brink of the river to determine the extent of its fall. Passed some precipitous bluffs of yellow clay in the bays of the river and camped at a small rapid. This rapid offers no impediment to navigation, as its fall is not more than nine inches, and the ruffled water is only on one side of the river, on the other the channel is smooth and deep - - - - -	43.00	122.90
No. 60	<i>August 4.</i> —Left camp at sunrise and did not stop for breakfast till 11.30 a.m. Resumed the voyage at 1.30 p.m. River filled in some places with well-wooded alluvial islands and mud-flats in course of formation. The banks are now lined with poplar. A thunderstorm with very heavy rain at 4.30 p.m., compelled a halt of three-quarters of an hour. Stopped to camp at 7.20 p.m. - - - - -	47.10	169.00
No. 61	<i>August 5.</i> —Started at 6.30 a.m. A drizzling rain, that had been falling all the morning, began to pour very heavily about 11 o'clock, rendering it necessary to halt and seek the shelter of some large white spruce trees which grew at the river side. Continued the journey after the rain had ceased, and, being aided by a very swift current, swept round the great bends of the river with considerable velocity. Current much increased in swiftness, being in many places upwards of four miles an hour. Several portions of the river descended to-day might be termed rapids, the water being quite rough with a heavy groundswell. Arrived at the Grand Forks at 2.20 p.m., and com-	50.90	219.90



Camp.		Main Track, distance from—	
		Preceding Camp.	River that Turns.
		St. Miles.	St. Miles.
No. 62	menced the ascent of the Coal Falls on the North Branch to search for lignite. Tracking up this impetuous torrent was a slow process, and camp was pitched at a point about two miles from the Forks, only reached at sunset by the canoe. Found Cretaceous fossils. To the Grand Forks - - - - -	29·83	249·73
	August 6.—Left the tent standing over the baggage and proceeded up the left bank of the river on foot, leaving the voyageurs to follow with the lightened canoe. The rapids retarded their progress very much. About five miles from the Forks a mass of the so-called coal of the voyageurs was observed in the drift banks, but none <i>in situ</i> ; it holds <i>Inoceramus</i> . Collected a number of specimens and glided swiftly back to the Forks. Saw a half-breed family with a bark canoe at the Forks, preparing to ascend the South Branch to gather Mesaskatomina berries. They had set out from the Nepowewin. Left the Forks at 3 p.m., and proceeded down the Main Saskatchewan. Arrived at Fort à la Corne a little after sunset, and pitched tent within the Fort enclosure. From the Forks - - - - -	20·15	
	August 7.—Fort à la Corne.—Triangulating to establish the position of prominent points in the valley and to ascertain its dimensions in the vicinity of the Fort. Sketching the Fort, the Mission, &c. The guide in charge of the train of carts journeying to this rendezvous from the Elbow arrived in the evening; he had left the carts in the morning and pushed on in advance. Determined the magnetic variation.		
"	August 8.—Fort à la Corne.—Wet all the morning. The carts arrived in the forenoon. This being Sunday, some of the party attended service, conducted on the opposite side of the river by the Rev. Henry Budd, a native missionary. Making preparations for an overland journey to Fort Ellice, and for a continuation of the canoe voyage to Red River, <i>viâ</i> the Main Saskatchewan and Lake Winnipeg.		

(VIII.)

FROM FORT PELLY, SOUTH-WESTWARD, TO THE LITTLE SASKATCHEWAN OR RAPID RIVER, VIÂ THE FLANKS OF THE DUCK AND RIDING MOUNTAINS—THENCE ALONG THE RAPID RIVER FROM THE SUMMIT OF THE RIDING MOUNTAIN TO THE ASSINNIBOINE—THENCE BACK TO THE INTERSECTION OF THE LOWER TRAIL AND THE LITTLE SASKATCHEWAN.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Pelly.
		St. Miles.	St. Miles.
No. 63	August 4.—Started from Fort Pelly encampment this morning, equipped for an exploration of the country lying between the Assinniboine River and the Duck and Riding Mountain Ranges. Pursued a south-east course along the left bank of the Assinniboine over the gentle western slope of the Duck Mountain. Crossed several small brooks, the largest called Sandy Knolls Creek, and rested near the Two Creeks at a point about two miles from the base of the Duck Mountain, and not far from the Assinniboine. Wood, water, and excellent grass in abundance. Camped at 7 p.m. in a region of luxuriant vegetation. Good land - - - - -	-	17·72
No. 64	August 5.—The train left camp a little before sunrise. Traversed an undulating country with numerous clumps of poplar and low willows. Land good but rather marshy in many places. Forded Pine Creek and rested for two hours at noon near Swampy Creek. Camped at sunset after crossing a fine tract of country with a most exuberant growth of grass and various plants between open groves of young aspen - - - - -	27·45	45·17
No. 65	August 6.—Struck camp and started at the usual early hour. Upon the train halting to rest and graze the draught animals a few miles beyond the Swampy River crossing, a detachment set out on horseback at right angles to the trail to make a reconnaissance of the Duck Mountain. Being unable to ford Swamp River at the point where they struck it, they proceeded up its valley until a dense poplar forest, filled with fallen logs occupying the slope of the mountain, compelled them to retrace their steps. Continued over a country almost unchanged in topographical character, except that for the last mile before camping the trees and vegetation bore evidence of having been prostrated and torn by a most violent storm from the west. Met a train of carts in the afternoon journeying to Fort Pelly - - - - -	17·17	62·34

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Pelly.
		St. Miles.	St. Miles.
No. 66	<i>August 7.</i> —Reached Shell River early. Upon fording this river, which separates the Duck and Riding Mountains, a mounted party set off to trace it to its confluence with the Assiniboine, whilst the train went into camp to await their return. Returning late camp was not moved. Good grazing	12·32	74·66
„	<i>August 8.</i> —Made a detour up the Shell River to-day, ascending the valley as far as it was possible to penetrate with horses through the forest of balsam-poplar and whitewood, rendered almost impassable by fallen logs and underbrush. Returned to camp and determined the latitude of this station (50° 58' 12").		
No. 67	<i>August 9.</i> Resumed the trail before sunrise. After two hours' travel the river trail diverging to Fort Ellice was passed, the train taking the mountain trail. Traversed an undulating district with open woodlands. Crossed several brooks, some with bad crossings. Halted for the noon rest on a rolling area with good meadow grass. Forded a creek and camped at 5 p.m. amidst clumps of poplar and willows. Excellent pasturage. Soil, rich sandy loam	24·00	98·66
No. 68	<i>August 10.</i> —Started at 4.29 a.m. Traversed a marshy undulating tract of country. Vegetation very luxuriant. Ponds very numerous. Country beautiful. Forded and rested at Birdstail Creek; dimensions of creek 40 feet wide and three feet deep. Strong current; canoes might descend, but they would find it difficult to return. Valley broad and deep, and partially wooded. Camped at 6.49 at Small Creek. Country fine - - -	22·52	121·18
No. 69	<i>August 11.</i> — <i>En route</i> at 4.21 a.m. Swampy Creek with a bad crossing. Trail followed the flank of the Riding Mountain, skirting an impenetrable forest of aspen stretching to the summit of the mountain. Dined at a rapid brook 10 feet wide and three deep. Country beautiful; poplars and willows fringing ponds and lakelets are characteristic of this part of the country. Young maple numerous on the left of the trail. Camped at sunset on the banks of the Little Saskatchewan (Rapid River) - - -	26·10	147·28
„	<i>August 12.</i> —Remained in camp and observed for latitude and variation (Lat. 50° 33' 15"). (Variation 15° 30' E.)		
„	<i>August 13.</i> —Left carts at camp (69), and proceeded on horseback up the valley of the Little Saskatchewan for a distance of 15·15 miles on the south-western slope of the Riding Mountain, when a dense barrier of woods opposing further progress and affording no feeding for the animals, compelled the party to return to camp (69).—The country passed over in making this side traverse is of the finest description, and well adapted for farming. The soil is a very rich loam, supporting alternate open woodlands and rich meadows. (Distance travelled in making this side trip to day, 30·30 miles.)		
No. 70	<i>August 14.</i> —Striking camp (69) at an early hour, the train ascended to the edge of the valley and journeyed along its margin in a southerly direction for the purpose of pursuing the river to its junction with the Assiniboine. Crossed an uneven country with rich soil, supporting clumps of poplar and willow. Halted at noon near a lakelet fringed with osiers. Camped in a district of ponds, some of them a quarter to half a mile in diameter. Excellent grass	26·40	
No. 71	<i>August 15.</i> —Got off at sunrise. Continued as close to the valley as possible in order to make a topographical delineation of the river. Three hours' travel brought the train upon the White Mud River trail leading from Fort Garry to Fort Ellice. Pursued the trail for 0·12 miles, and then diverged to the south-west, continuing along the river. Camped at 3.40 p.m. to make new axle-trees for two of the carts, the old ones being nearly worn out, and there being a supply of post oak in the valley. Good pasturage. Wood. Plenty of water in creeks and lakelets - - -	13·70	
No. 72	<i>August 16.</i> —Axletrees finished and course resumed at 7 a.m. Crossed the lower trail to Fort Ellice after journeying one mile. Traversed a gently undulating prairie with a multitude of ponds and lakelets in the lowlands. Rested near the river at a point where the valley becomes so broad and shallow that it is lost in the surrounding plain. Crossed several tributary creeks and camped on a rolling prairie strewn with boulders - -	23·95	
No. 73	<i>August 17.</i> —Started at 6.20 a.m. over an open level prairie through which the Little Saskatchewan now meanders. Halted for three hours at a point where the slopes of the valley resume their abrupt character, the river cutting through another plateau of light rolling prairie with short and scanty herbage. Crossed some dry coulés intersecting an inclined undulating prairie, and camped in the valley of the Assiniboine at its confluence with the Little Saskatchewan. Valley about a mile wide, filled with most luxuriant grass. North slope treeless, southern slope clothed with poplars -	15·67	
	Explored north of the mountain trail crossing - - -	15·15	
	Length of track along the Little Saskatchewan - - -	94·87	



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Pelly
		St. Miles.	St. Miles.
No. 74	August 18.—Struck camp upon completing a reconnaissance of the junction of the two valleys, and taking intersecting courses to distant points. Turned north-westerly from camp over a light rolling prairie overspread with an accumulation of boulders. Soon entered and began to retrace the trail of yesterday. Nooned where the yesterday's morning halt was made.		
No. 75	August 19.—On the trail at sunrise. Continuing up the Little Saskatchewan Valley. Reached the teamsters' camp (71) on the lower trail to Fort Ellice at 2.40 p.m. Commenced the trail survey of the lower track to Fort Ellice, from the brink of the Little Saskatchewan Valley, one mile from the crossing place, at 5.40 p.m. Camped at 6.20 near the point where men and carts were left on the 16th.		

(IX.)

FROM THE LITTLE SASKATCHEWAN FORD WESTWARD TO FORT ELLICE, VIÂ THE LOWER TRAIL.

Camp.		Main Track, distance from—	
		Preceding Camp.	Little Saskatchewan.
		St. Miles.	St. Miles.
No. 76	August 20.—Struck camp (75) 2.15 miles west of the crossing place, and pursued the trail a little before sunrise; winding westerly amidst a labyrinth of ponds and lakelets scattered over a rich undulating prairie supporting a most rank vegetation, gaily tinted with brilliant flowers. Rested for about two hours near the junction of this trail and the White Mud River trail from Prairie Portage. Camped three-quarters of a mile from Lac Salé on a gently undulating prairie. Good grass. Straggling clumps of under-wood, poplar, and low willow bushes. Soil, sandy loam - - -	23.40	25.55
No. 77	August 21.—Passed close to Lac Salé, a fine expanse of water one mile in length and half a mile in breadth. 10.70 miles, travel brought the train to the southern extremity of Shoal Lake, where camp was pitched in order to enable a division to make a survey of this oblong expanse of water lying nearly at right angles to the trail. The division followed up the eastern shore of the Lake to its northern extremity, and returned to camp. Shoal Lake is 5.65 miles long and 0.25 to 0.45 miles wide, and lies in a broad shallow basin. In the vicinity of Shoal Lake the ground is much covered with a white efflorescence. Good grazing. Wood and water in abundance	10.70	36.25
No. 78	August 22.—Crossed the outlet of Shoal Lake connecting it with another lake three-fourths of a mile in diameter, and proceeded over an undulating prairie, in several places flat and marshy. Rested for two hours amidst a group of ponds. Crossed a brook soon succeeded by a valley 10 chains wide and 30 feet deep, filled with stagnant pools. Rested for two hours in a good pasturing district, and then journeyed across a country unchanged in characteristic features. Forded Birdstail Creek, (a stream at this point 25 feet wide and two feet deep, meandering in a valley 80 feet deep and one mile broad,) and camped two miles west of it. Luxuriant herbage. Thickets of young poplar - - -	23.80	60.05
No. 79	August 23.—Started at 4 a.m. Crossed a small creek and followed the trail over a beautiful prairie with frequent clumps of poplar. Roses, dogwood, and willows very numerous. A few small oaks. Grass and plants luxuriant. Halted two hours at a tributary of Birdstail Creek flowing in a deep valley. Reached the Assinniboine about noon, and pitched camp in the valley near the mouth of Beaver Creek. Met here the train which had just arrived from Fort à la Corne on the Saskatchewan. Animals turned loose to graze on the flats, and the remainder of the day occupied in triangulating in the valley of the Assinniboine, between Qu'Appelle River and Beaver Creek. Made a transverse section of the Assinniboine Valley - - -	10.80	70.85

(X.)

FROM FORT À LA CORNE SOUTH-WESTWARD TO THE "LUMPY HILL OF THE WOODS"—THENCE SOUTH-EASTWARD TO TOUCHWOOD HILLS AND FORT ELLICE, VIA THE CARLTON TRAIL.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 80	<i>August 9.</i> —The morning occupied in completing the equipment for a reconnaissance of the country lying between the Grand Forks of the Saskatchewan and the confluence of the Qu'Appelle and Assiniboine Rivers. New axletrees having been made and fitted to the carts, the train left Fort à la Corne and pursued the trail at 1 p.m. (about an hour and a half after the canoe division had embarked for the voyage down the Saskatchewan). Ascended the hill-sides of the valley through thickets of aspen, and crossed a belt of B. pine from a quarter to three quarters of a mile wide growing along the margin of the summit plateau. Traversed an undulating country with good soil, bearing open groves of aspen, Banksian pine, and spruce. Forded Long Creek (a small tributary of the Main Saskatchewan), and camped on its banks at 7 p.m. Vegetation very luxuriant. Raspberries in profusion. Plenty of wood and water. Good farming country - - - - -	-	10·00
No. 81	<i>August 10.</i> —Struck camp and commenced taking the trail courses at 4.45 a.m. Ascended the shallow valley of Long Creek, traversing a tract of excellent undulating land. Remains of an ancient aspen forest frequently observed. The huge trunks of burnt trees lying hidden in the long herbage occasion much trouble in traversing this district with carts. Killed a bear, and halted two hours beside a pond 250 yards long, to graze the animals and take breakfast. Nooned at a dilatation of Long Creek, one mile long and 200 yards wide. Re-crossed Long Creek near a point where it issues from a series of lakelets extending westerly for about 10 miles. Crossed a hill range running at right angles to the trail, and camped at 7.25 p.m. in view of the Birch Hills. Splendid soil. Fine sloping woodlands interspersed with beautiful meadows. Vegetation everywhere most luxuriant.—Flowers innumerable. Abundance of water in brooks and lakelets. Rain and thunder at night - - - - -	28·17	38·17
No. 82	<i>August 11.</i> —Train in motion at 4.30 a.m. Traversed a fine valley from four to six miles wide, with gentle slopes clothed with very long grass. The trail in this valley follows the windings of a shallow and sometimes dry creek, flowing into the South Branch. Halted for two hours to allow the horses to feed in an extensive wet meadow dotted with ponds—the sources of some feeble streamlets meandering to the Saskatchewan. Continuing parallel to the northern slope of the Birch Hills—a thinly wooded range in which Root River rises—the trail crosses a very fine grazing or farming district. Rested for three hours at noon in a broad rich valley bounded by gentle hill ranges about five miles west of the Saskatchewan (S. B.) A winding course amidst numerous ponds and streamlets of various sizes, brought the train to Lumpy Hill Creek, a brook with many stagnant dilatations, issuing from the hill of the same name. Pursued this stream for two hours, and pitched camp beside it a little after sunset. Ascended the Lumpy Hill of the Woods through open aspen groves, and obtained from its summit a view of the Bloody, Woody, and Birch Hill ranges. Rich soil. Good pasturage. Plenty of wood and water - - - - -	30·10	68·27
No. 83	<i>August 12.</i> —Started before sunrise across an undulating prairie sprinkled with lakelets and came upon the Carlton track after two hours' travel. After following this leading trail eastward for two hours a halt was made in a region of lakes and ponds lying between low spurs from the Lumpy Hill. In descending from this south-eastern extension of the Lumpy Hill range, the course passes over a succession of hills and dales wooded with aspen clumps, until a level and partially wooded prairie is reached. Crossed several brooks—feeders and outlets of many beautiful lakes—and camped on a rolling prairie whilst the sun was just sinking below the horizon. Good grass. Soil light gravelly clay on the summit of hills, very rich in low places. Lake water a little brackish. Clumps of aspen. Grasshoppers seen - - - - -	29·40	97·67
No. 84	<i>August 13.</i> —Left camp at sunrise and journeyed three and a half miles in a fine dry valley surrounded by wooded hills enclosing several beautiful lakes. Then traversed a range of hills and mounds, and passed five miles to the west of the lake "where the Moose died." Whilst the carts pursued the trail several side trips were made on horseback to the more prominent hills and lakes on either hand. Skirted some conical hills rising through an undulating prairie, and entered a very hilly country abounding in lakelets. Boulders on the hills. Rested for three hours at the base of the Big Hill, and leaving the boundary of the so-called wooded country, entered upon a treeless undulating prairie. From the summit of Big Hill was seen "Buffalo Cart Plain," lying five miles to the north-east. Followed a sinuous course amidst a labyrinth of dome-shaped hills, and camped on a gently rising prairie, at the beginning of the "Woody Range." Soil light and gravelly. Many marshy lakes. Small aspen and willow bluffs. A little rain. Gorgeous sunset - - - - -	23·66	121·33



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 85	<i>August 14.</i> —Started train at daylight across a beautiful undulating country, but still the same light soil and short herbage. Rested for two and a half hours at noon on a grassy area surrounded by lakelets and open aspen groves. One and a quarter miles S.E. of a brook flowing into Ashes Lake the Carlton track is joined by the trail from the Moose Woods. Camped at 7.35 p.m. on a vast undulating treeless prairie, called the “Carry-wood Plain.” Knolls, hillocks, and lakelets as heretofore. Soil light and herbage scanty. Long Lake seen to the south-west - - - - -	33.48	154.81
No. 86	<i>August 15.</i> —Raised camp a little after sunrise and proceeded across a beautiful prairie studded at intervals with clusters of conical knolls. Traversed several areas of salt prairie, in many places wet in spring, and skirted the shores of a saline lake with water of a bitter taste. Rested upon a patch of salt ground surrounded by wet prairie and an extensive range of ponds and marshy lakes. Vast numbers of aquatic birds seen in the salt marshes and lakes. A few grasshoppers observed. Mosquitoes and bulldogs still very numerous and tormenting. Crossed a fine woodless prairie, separated from a beautiful undulating ascent by a running stream of cool good water 10 feet broad. Reached the summit plateau and journeyed over an excellent tract of country with many beautiful lakes, until reaching Touchwood Hill Fort, where camp was pitched at 8 p.m. Land of the best quality. Small aspen groves. Hill and dale. The richest profusion of vegetation. Soil very superior. Lakes in vast numbers - - - - -	30.10	184.91
„	<i>August 16.</i> — <i>Touchwood Hill Fort.</i> —Same camp. Whilst the train remained in camp to-day in order to repair the travelling equipage, as well as to rest the horses and take advantage of the good grazing in this locality, an opportunity was afforded for examining and making a reconnaissance of the Touchwood Hill range and surrounding country. Connected several of the more prominent hills (by intersecting bearings) with Last Mountain, Long Lake, <i>Ka-ou-ta-at-tin-ak</i> (Heart Hill), Little Touchwood Hills, &c. Much conjuring going on in an Indian (Cree) encampment here. The conjuring drum is loud and incessant to-night as well as last night.		
No. 87	<i>August 17.</i> —Lovely morning. Made an early start, winding around lakes embosomed in a well wooded chain of hills extending from the Great to the Little Touchwood range, succeeded by a beautiful level country embracing much good land. Crossed many intervals of prairie and hill country blending alternately into each other, and rested betwixt two lakes, one of them one mile in diameter. Good land. No sandy soil seen yet, east of the Heart Hill. Grasshoppers flying. Traversed a fine undulating country and pitched camp upon crossing the flank of the Little Touchwood Hills. Excellent pasturage, wood and water - - - - -	24.50	209.41
No. 88	<i>August 18.</i> —Resumed the survey at sunrise. Crossed a very beautiful undulating country. Many small lakes. Aspens on the ridges 6–9 inches in diameter. Killed a badger at the noon halt. Crossed a stream with a rapid current connecting two lakelets, and camped in a treeless valley filled with long rich grass. Fine pasturage country. Picturesque scenery. Soil light on the ridges. Rich vegetable mould in the flats. Herbage very rank. Numerous badger holes - - - - -	25.50	234.91
No. 89	<i>August 19.</i> —Set out at 5.15 a.m. Thermometer 46°. Heavy westerly wind. Crossed many grassy streamlets connecting chains of ponds, and entered upon a beautiful woodless country with an undulating surface covered with long waving grass. Halted for two hours amidst innumerable ponds and lakelets. Much beautiful meadow land. Good grass, fine soil. Grasshoppers flying. Intersected at noon the trail from Fort Pelly to the Qu’Appelle Mission. Traversed in the afternoon a treeless rolling prairie strewn here and there with small boulders, and extending to the horizon in every direction, except on the south and south-west, where the wooded ranges of File Mountain and Pleasant Hill interrupt the uniformity of the outline. Camped on a fine meadow encompassed by round hillocks and lakelets -	24.95	259.86
No. 90	<i>August 20.</i> —Heavy dew last night. Before making the noon halt to-day, four creeks and several dry valleys were crossed. These streams run with a swift current and unwater a very fine grazing country with much arable land. Camped at sunset in a beautiful hilly district, studded with little aspen bluffs. Good grass. Water in marshy hollows - - - - -	27.00	286.86
No. 91	<i>August 21.</i> —On the trail at sunrise. Traversed a high rolling country until reaching Little Cutarm Creek, an affluent of the Qu’Appelle, 20 feet broad and 1½ feet deep at the ford. Continued across a beautiful open prairie surrounded by aspen groves and grassy knolls, and dined upon fording Big Cutarm Creek, another tributary of the Qu’Appelle flowing in a deep valley. Good grass and aspen clumps at camp. Water in small swamps. Soil light and poor on the knolls and ridges. Some excellent land in the hollows and flats - - - - -	24.40	311.26

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 92	August 22.—Hoar frost this morning. Left camp early, pursuing an easterly course towards a “pilot hill,” called “Some one Knocked,” or the Spy Hill. This conical elevation of gravel and sand attains an altitude of 120 feet above the prairie, and is the site of old Fort Cutarm. East of the Spy Hill the trail runs nearly parallel to, and not far from the Qu’Appelle valley, and the country deteriorates in character, the soil being sandy, and the herbage indifferent. After the noon halt, four hours’ travel over a sandy prairie skirted by sand dunes brought the train to the Assinniboine near its confluence with the Qu’Appelle. Forded the Assinniboine and pitched camp on its rich alluvial flats - - - - -	22’52	333’78
No. 93	August 23.—Moved camp to the mouth of Beaver Creek. The division returning from a survey of the Riding Mountain, the Little Saskatchewan, &c., soon made its appearance and joined this train after an absence of five weeks. The greater part of to-day occupied in making observations - - - - -	3’00	336’78

(XI.)

FROM FORT ELLICE EASTWARD TO PRAIRIE PORTAGE AND SELKIRK SETTLEMENT, VIÂ THE WHITE MUD RIVER TRAIL.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
		St. Miles.	St. Miles.
No. 94	August 24.—Struck tents early. The train—which is now a combination of the divisions that separated at the Qu’Appelle Mission on 20th July—started from the Assinniboine and Beaver Creek forks and commenced the journey eastward for Red River, over the trail which was surveyed westward from its junction with the White Mud River trail on 20th to 23rd August. Camped at sunset. Fertile country. Thickets of aspen. Good pasturage. Plenty of fresh water in ponds.		
No. 95	August 25.—Took the trail at sunrise. The courses and distances were not repeated on this portion of the track, having been already recorded between camps 76 and 79. Encamped at the usual hour.		
No. 96	August 26.—Underway before sunrise. Crossed alternate open woodlands and prairies studded with beautiful lakes, the haunts of vast flocks of waterfowl. Good soil. Exuberant vegetation. Fine grazing or farming country.		
No. 97	August 27.—Morning cold and frosty. Ice on water. Tents frozen. Reached the trail forks (50·80 miles from Fort Ellice) at 7.15 a.m., and commenced the survey of the Upper or White Mud River trail, pursuing a north-easterly course over an open undulating prairie. Rested for two hours at a marshy pond in a district of good pasturage. Crossed a tract of fine rolling land with a profusion of fresh water ponds, and pitched camp at sunset upon a level area wooded with large detached clumps of poplar. Soil, rich sandy loam. Subsoil everywhere gravelly clay. Good wood, water, and grass -	25’00	75’80
No. 98	August 28.—Started at 4 a.m. After 2’15 miles’ travel the train crossed the trail of the division which passed over this district on 15th August, whilst surveying the Little Saskatchewan. Threaded through a dense jungle of poplars, willows, roses, and twining plants, until reaching the Little Saskatchewan, where a halt was called for breakfast, upon fording the stream at 7 a.m. River 68 feet wide, 3 feet deep, current 3½ miles an hour. Valley 100 feet deep, and ¼—½ a mile broad. Long waving grass in valley, with a most luxuriant underwood of cherry, maple, and hazel. After leaving the valley the trail leads through a dense forest of poplar and whitewood—the trees generally tall and straight, and averaging 18 inches to 2 feet in diameter. Halted at noon upon a small open space affording good grazing and water. Crossed five streamlets issuing from the Riding Mountain, along the southern flank of which the trail now lies. Camped upon a tract of burnt land thickly covered with oak stumps sprouting again. Fine farming land. Grass good, but in small areas - - - - -	21’00	96’80
No. 99	August 29.—This day being Sunday, the train did not leave camp till 8’30 a.m. Traversed a gently undulating country covered with low willows and burnt oaks. Soil, rich sandy loam. Halted at noon upon a nearly level prairie covered with rich grass and brilliant flowers, encompassed by light aspen groves on the south, and a close forest of poplar extending to the summit of the Riding Mountain on the north. Crossed a sluggish brook, and after traversing a fine grazing country, came upon the White Mud River. Continued along the north bank of this river until sunset. Beautiful country. Excellent wood and pasture land. The valley timbered with balsam, poplar, aspen, oak, maple, and ash - - - - -	23’00	119’80



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Ellice.
		St. Miles.	St. Miles.
No. 100	August 30.—Raising camp early, the trail was resumed at daylight. Wended through a close wood of poplar with intervals of wet prairie and good hay ground. Made the morning halt of two hours near a rich wet meadow, upon which the animals fed greedily. Continued the journey across a fine country densely covered with sapling poplar, except along the track. Saw two jumping deer. Much white efflorescence along the path. Forded White Mud River at noon, and journeyed down its southern bank for some miles through a fine farming country. Sugar maple forests alternating with large areas of unusually long and luxuriant grass. Recrossed White Mud River, kept along and camped on its north bank, 1½ miles from the ford. Level land. Rich soil. Fine grass and wood. The river 55 feet wide, 4 feet deep - - -	25'00	144'80
No. 101	August 31.—Took an early start, and proceeded along the north bank of the White Mud River as before. Traversed a very fine agricultural country, diversified with beautiful woodlands and extensive open meadows. Grass and many varieties of plants wonderfully luxuriant. After travelling 9'25 miles the train recrossed the river, whilst a division embarked in canoe to make a track survey of the stream to its mouth. The train journeyed 5'40 miles farther, and camped to await the return of the canoe party from Lake Manitobah. In crossing Rat Creek just before camping, all the horses stuck in its deep miry bottom. The canoe detachment, in descending White Mud River to Lake Manitobah, a distance of 15'80 miles by its meanderings, startled vast numbers of ducks and other waterfowl. The portion of the river examined in canoe is a fine large stream flowing in a broad level valley. The width of the river increases from 70 feet to 150 feet at its mouth. Depth, from 5 to 7 feet. Before debouching into Lake Manitobah it receives Rat Creek, a tributary rising in the Sand Hills on the Assinniboine a little west of Prairie Portage. Another division made a detour from camp to Lake Manitobah and brought back the canoe on a cart. Traversed in returning a fine level hay country, with occasional cranberry marshes and "oak openings." Passed two log shanties. Plenty of long rich grass and sunflowers, but a scarcity of fire-wood at camp - - -	14'65	159'45
No. 102	September 1.—Moved camp early and continued up Rat Creek about two miles, thence proceeded south-easterly across an open level prairie with long rank grass growing on a surface soil of rich clayey loam. Thence continued for a considerable distance alongside of a dry valley five chains wide, intersecting a level treeless plain, and leading towards Lake Manitobah. Crossed several other dry valleys ramifying from this ancient watercourse into a vast woodless prairie, and struck the Red River trail at noon a quarter of a mile west of the site of camp 4 of June 17 and 18—Prairie Portage.	16'55	176'00
No. 103	To old camp (4), Prairie Portage - - -		
No. 104	September 2.—Left Prairie Portage for Selkirk Settlement, via the Lane's Post and White Horse Plain trail running north of the Assinniboine.		
	September 3.—Upon the trail early. As this trail is that which was traversed by the train whilst outward bound in June, the return track survey was discontinued at Prairie Portage, and each day's travel from thence to Red River is not recorded.		
	September 4.—Arrived at Selkirk Settlement. To Fort Garry - - -		236'11

(XII.)

FROM FORT À LA CORNE TO SELKIRK SETTLEMENT, VIA THE MAIN SASKATCHEWAN AND THE WEST COAST OF LAKE WINNIPEG.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 105	August 9.—Completed a series of observations, and, embarking in a small birch-rind canoe with two voyageurs at 11.30 a.m., resumed the track survey of the Saskatchewan. Paddled steadily, and maintained an average velocity of 5½ miles an hour as heretofore, being aided by the uniformly swift current of the river. In sweeping round the gigantic bays on alternate sides of the river, many turbulent rills were observed emptying the drainage of the upper plateaux down the face of the high clay bluffs into the Saskatchewan. Passed through a tumultuous current in rounding some of the points, caused by stony shallows extending into the river at these places. Camped on a low stony point, an hour after passing the last of the clay cliffs coming out upon the river. Fine country for farming; well wooded with large aspen, balsam spruce, and poplar. Plenty of dry driftwood lining the brink of the river - - -	-	23'06

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 106	<i>August 10.</i> —Descended, soon after embarking to-day, several small rapids, at the points. Although these so-called rapids flow very swiftly and with considerable turbulence, they would not obstruct the navigation of the river, as they are only on one side of, and do not affect the main channel, which is quite tranquil and deep. Passed numerous islands, and camped at sunset on a low and rich alluvial flat, thickly wooded. Country well adapted for agriculture. Mud flats in the river - - - - -	53°10	76°16
No. 107	<i>August 11.</i> —Started at 4.10 a.m. River sometimes spreads to a width of upwards of $\frac{1}{4}$ of a mile, and meanders by several channels among large wooded islands. Current swift. Frequent sand bars and snags, water mark 2 feet higher than present level. Trees along the bank much scratched by ice. Very rich alluvial land bordering the river, well timbered with poplar, birch, aspen, spruce, &c. Many islands. Water very muddy. Violent thunderstorm and rain at night - - - - -	46°97	123°13
No. 108	<i>August 12.</i> —Resumed the voyage at day-break. The current is becoming slacker, being now $2\frac{1}{2}$ miles an hour. Banks lower and more lightly timbered. Many large snags and sawyers. Reached Big Stone River at noon. Proceeded to Pemican Portage, 1°40 miles farther down, and camped. Flats covered with willows and alders. Poplar, ash, elm, sugar maple, and spruce along the margin of the river - - - - -	29°35	152°48
No. 109	<i>August 13.</i> —Crossed from the Saskatchewan to Cumberland House, <i>via</i> Pemican Portage, a distance of 1°86 miles. Had to pass through a great reedy marsh $1\frac{1}{2}$ miles across. Water 2-3 feet deep. Some good land in the immediate vicinity of Cumberland.		
„	<i>August 14.</i> — <i>Cumberland House.</i> —Remained here to-day, in order to procure a new $2\frac{1}{2}$ -fathom canoe which was in process of construction. Saw Messrs. Stewart and Anderson, gentlemen in the service of the Hon. Hudson's Bay Company, who went in search of Sir John Franklin in 1855, and descended Back's Great Fish River to the Arctic Sea in bark canoes.		
„	<i>August 15.</i> — <i>Cumberland House.</i> —To-day being Sunday, although all preparations were completed for starting, the journey was not resumed. Fine weather. Cold at night. Mosquitoes becoming less numerous.		
No. 110	<i>August 16.</i> —Left Cumberland at 9 a.m. and reached the Saskatchewan after 6°25 miles' paddling through Big Stone River. Passed the beginning of Pemican Portage (Camp 108) at noon. Made several observations to ascertain the volume of water and fall of the Saskatchewan, near camp, 4°50 miles below Tearing River or 19°38 from Pemican Portage. Banks very low and flat, covered with willows and scrub poplar. River frequently impeded by sand bars, mud flats, and shoals. Mean current two miles an hour. Rain during the night - - - - -	19°38	171°86
No. 111	<i>August 17.</i> —Embarked at 4 a.m. and passed Fishing Weir Creek after $1\frac{1}{2}$ hours' paddling. Glided amidst a number of beautiful islands before passing the Rat Root carrying place, an Indian pitching trail leading to lakes north of the Saskatchewan. Swept swiftly round the Big Bend, and rested for an hour after passing a portion of the river which bears a strong resemblance to Rainy River, only the banks are much lower and not so well wooded. Drifted past White Fish Creek and arrived at the Pas at sunset. Camped near Christ Church - - - - -	46°10	217°96
No. 112	<i>August 18.</i> —Left the Pas this morning. After travelling a short distance, came to a channel forking off from the main river and forming a chord to one of its great bends. Whilst at the noon rest, near a branch leading to Moose Lake, a strong south wind arose accompanied by rain. Passed Muskrat Island, a very large island abounding in muskrats, and consequently much resorted to by Indians. After landing to camp, a thunderstorm and heavy rain came on. Much hay ground on the flats in rear of a light belt of brushwood lining the river, but country is now altogether too low and swampy for agricultural purposes. Saw beaver, muskrat, and black fox to-day - - -	25°25	243°21
No. 113	<i>August 19.</i> —Course now lies through the great alluvial delta of the Saskatchewan. Embarked early and soon passing Marshy Lake, entered a labyrinth of intricate ramifications of the main river reticulating amidst vast muddy flats and shallow marshes. Camped a few miles below Muddy Lake, on the last spot of dry ground to be found before entering Cedar Lake. Willows and grass for fuel. Many sunken shoals and snags. Channels very shallow - - - - -	35°50	276°71
No. 114	<i>August 20.</i> —Started from camp at the usual hour and entered Cedar Lake after 2°70 miles' travel. Coasted along the north shore sometimes betwixt islands and sometimes making long traverses across deep bays. Encamped at 6 p.m. on a narrow point from whence a contrary wind prevented farther progress - - - - -	21°60	298°31
No. 115	<i>August 21.</i> —Left camp at daybreak. Entered the recommencement of the Saskatchewan east of Cedar Lake at noon. Saw some buildings just erected by the Hon. Hudson's Bay Company on the banks of the river, for a trading post (Cedar Lake House). Soon arrived at Cross Lake Rapid, and after an hour's work in levelling and measuring the rapid and portaging, made the traverse of Cross Lake. Proceeded down the river till reaching the foot of the second rapid east of Cross Lake at dusk. Met a brigade of boats bound		



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 116	up. Good timber and some good clay land along the margin of river. Horizontal limestone frequently exposed - - - - - <i>August 22.</i> —Reached the summit of the Grand Rapid at 9 a.m. Occupied seven hours in levelling and making a survey of the rapid, as well as portaging, examining the rock formation, sketching, and making a general reconnaissance. Ran the lower portion of the rapid and arrived at the mouth of the Saskatchewan at 6 p.m. Continued 2·80 miles farther along the coast of Lake Winnipeg and camped at dark - - - - -	27·00	325·31
No. 117	<i>August 23.</i> —Embarked and resumed the track survey at daylight. Crossed a succession of deep funnel-shaped bays, branching into a flat swampy country, and halted to cook dinner at the neck of Cape Kitchinashi. Tracked from thence to the extremity of the cape and camped late. Observed the magnetic deviation. Coast composed of open marshes in front of a vast tamerac and spruce swamp - - - - -	11·61	336·92
No. 118	<i>August 24.</i> — <i>En route</i> at sunrise. Coasted along until reaching the Gull Islands at 4 p.m., when a violent easterly wind arose and prevented farther progress. Camped on one of the islands three miles from mainland. No wood - - - - -	31·28	368·20
No. 119	<i>August 25.</i> —Detained by contrary wind until 2 p.m. Pushed on to the next island and thence to a point on the mainland, and camped on a narrow beach, separated, as usual, from the great tamerac swamp by a wide marsh. Violent thunderstorm at noon, with high wind and heavy rain. Uncommonly brilliant aurora at night - - - - -	23·10	391·30
„	<i>August 26.</i> —Same camp. Unable to stir from camp to-day in consequence of a violent and very cold N.W. wind which arose in the night and continued for 24 hours, raising a wonderfully tempestuous sea upon the lake.	7·50	398·80
No. 120	<i>August 27.</i> —Got off at daylight. Touched at an exposure of limestone and collected some organic remains. Had to put into the estuary of a rivulet, affording shelter for canoes or boats, for four hours, in consequence of a brisk opposing wind which sprang up. The wind increasing, compelled a night camp after creeping along the shore a few miles farther. Lake separated as before, from a boundless swamp, by a narrow sandbeach strewn with driftwood - - - - -	17·33	416·13
No. 121	<i>August 28.</i> —Left last night's bivouac at the usual hour and made the noon halt at Warpath River. After verifying the rate of canoe by a standard measured along the beach, the course was resumed. Made great progress by tracking along the coast and camped opposite Caribou Island - - - - -	33·50	449·63
No. 122	<i>August 29.</i> —Started at dawn. Rested at Limestone Point after making some wide traverses against a strong contrary wind. This highly fossiliferous exposure afforded some good specimens. After rounding the point, had to contend against a stronger wind and heavier sea than before. After a struggle of two hours in an angry sea, reached a small sand island and camped - - - - -	15·97	465·60
No. 123	<i>August 30.</i> —Succeeded in reaching the Little Saskatchewan at 11 a.m., although the wind continued all last night and this morning. Ascended the river to the rapids and found there an encampment of Swampys engaged in fishing. A portion of this Indian band had just returned from the Grand Rapid. Returned to the mouth of the river and camped after measuring its volume of water, and penetrating into the great muskeg through which it has excavated its way - - - - -	6·45	472·05
No. 124	<i>August 31.</i> —Left the mouth of the river at daybreak. Continued paddling steadily until reaching the commencement of a broad traverse, when a very strong head wind compelled a halt. A vast wilderness of swamps and marshes as heretofore - - - - -	7·40	479·45
No. 125	<i>September 1.</i> —Embarked early and crossed Mantagao Seebe Bay under sail, in a high rolling sea. The wind became so violent and opposing that it occasioned a detention of six hours after making this traverse. Still the same interminable muskeg and marsh. By forcing five hours against the wind, Point Wigwam was reached at 6 p.m., where a camp was formed in the lee of a few stunted willows growing in a patch of sand surrounded by a vast marsh - - - - -	18·73	498·18
„	<i>September 2, 3, and 4.</i> —Same camp. Windbound three days and nights by a violent and continuous hurricane from the N.N.W. which raised a most tempestuous sea upon the lake. Pemican almost exhausted—have to live on short allowance. Sustained much cold and rain, having no tent and no wood.		
No. 126	<i>September 5.</i> —Got off at last. Wind more moderate but still contrary. Passed the Bushkega Islands and contended with the wind, until an attempt to round Point Turnagain, compelled rather an abrupt landing on a lee shore in a high surf. Collected some specimens here, from a thin exposure of limestone - - - - -	7·70	505·88
No. 127	<i>September 6.</i> —Up at daybreak, but the wind did not moderate sufficiently to permit re-embarkation till 9 a.m. Coasted and tracked against the wind, round Lynx Bay; and made a meal upon sand cherries at noon. Rounded the Cat Head at two o'clock and continued on until a high contrary wind blowing across Kinwow Bay compelled a sudden camp upon Macbeth's Point, a narrow boulder-promontory so called from a "lopstick" made by that person - - - - -	15·26	521·14

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort à la Corne.
		St. Miles.	St. Miles.
No. 127	September 7.—Same camp. The gale continued all night and increased to a perfect hurricane during the day, raising a sea upon the lake in which no canoe could live. Set snares for rabbits but caught none. Men dispirited by want of food.		
No. 128	September 8.—Pushed off in a heavy swell to make the long traverse across Kinwow Bay. Had some tough wet work in the middle of the traverse in consequence of a sudden squall that blew up. Reached the Wicked Point at noon, when a strong easterly wind arose and stopped further progress. Sand dunes. Cranberry marshes and swamps. Clear and sunny during the day. Aurora at night. Clouds rising - - - - -	10·13	531·27
No. 129	September 9.—The wind of yesterday having fallen considerably; by starting early and pushing along shore in the lee, the Pike Head was reached at 10.30 a.m. Ascended the Jack Fish River, and spent the day in repairing the weir across the river in order to catch a supply of fish, if possible. Rain in the evening - - - - -	9·53	540·80
"	September 10.—Caught a supply of fish last night, but did not resume the voyage in consequence of unfavourable wind. Rained heavily all day.		
No. 130	September 11.—A wet and stormy morning, wind blowing hard from the N.W. Set out upon the lake early, the wind being favourable and having moderated a little. Ran on under a blanket-sail till near sun-down when the wind fell altogether. Continued paddling until night set in, and camped on Louis Island in the mouth of Fisher Bay - - - - -	11·40	552·20
No. 131	September 12.—Up long before daylight preparing to start, but greatly disappointed to find a smart head wind blowing from the south. Embarked, however, at daybreak and worked steadily, although making little headway. Crossed to Great Moose Island, and from thence by several other wide traverses to Whiteway's Point and camped at dark - - - - -	20·20	572·40
No. 132	September 13.—Crossed from Whiteway's Point to the Dog's Head and ran along the east coast of the lake until passing Loon's Straits. Re-crossed the lake from thence to Grindstone Point. After examining and drawing the rock exposure here, continued on to the Little Grindstone Point and camped very late - - - - -	35·10	607·50
No. 133	September 14.—Started at 5 a.m., and crept along shore, in the lee and contending with head wind alternately. Passed the Grassy Narrows and reached the Sandy Bar at Nightfall. Good boat harbour within the Sandy Bar and some good land reported in the vicinity - - - - -	28·80	636·30
No. 134	September 15.—Moved off before daylight. Cold morning. Passed Drunken River and ran along a coast revealing fine clay banks well wooded with aspen. Pushed on, after a short rest at the Willow Islands, and arrived at the mouth of Red River at dark - - - - -	42·50	678·80
No. 135	September 16.—Left Lake Winnipeg at 6 a.m., and arrived at the Middle Settlement, Red River, at 11 p.m. - - - - -	33·00	711·80

(XIII.)

FROM SELKIRK SETTLEMENT SOUTH-EASTWARD TOWARDS LAKE OF THE WOODS AND BACK, VIÂ LA RIVIÈRE SEINE OR GERMAN CREEK.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 135	September 18.—All the morning preparing for an exploration of the country east of Red River. Set out from the Middle Settlement with a small equipment, and having procured some additional supplies at Fort Garry, crossed the Assiniboine and Red River, and camped a mile from a bridge over La Rivière Seine. Fine night. Very warm.		
"	September 19.—Same camp (Sunday). The horses having strayed during the night, all hands were occupied to-day in searching for them, but without success. Extraordinary hot day. A reddish thick haze, like smoke, in the atmosphere. Large flocks of geese flying to the south. Immense flocks of black-birds (the crow) flying to the south also.		
No. 136	September 20.—Very cold morning. The horses and mule were brought into camp early. Started at 11 a.m. to follow the picket line run for the purpose of locating a road last year. Camped after accomplishing 14 miles, about two-thirds of which lies under water averaging 18 inches deep. Small islands or low ridges bearing young osiers and aspen, scattered here and there through extensive wet prairies. Fascines and side ditching would be requisite on the greater portion of the located line traversed to-day.		



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 137	<i>September 21.</i> —Very cold last night and wet this morning. Unable to start until 8 o'clock in consequence of the heavy rain. Many detours from the picket line had to be made to-day in order to get the animals across the marshes and quagmires through which it passes. Proceed to an island opposite the 22nd mile post, but a quagmire beyond, impassable for either men or horses, prevented farther advancement. Turned back and camped near same place as last night. Very bad ground for horses. Soft and full of fallen logs. A horse under a cart fell four times in about 50 yards.		
No. 138	<i>September 22.</i> —Cold morning—ground quite white. Very cold last night. Started early and reached the banks of Red River at noon. Pitched camp beside the old track and made preparations to set out again.		
No. 139	<i>September 23.</i> —Dark cloudy morning. Drove the animals into camp at day-break. Started at 6.20 a.m., and pursued a S.E. course along a good trail leading over fine rich land. Stopped two hours to feed at Legemenaire's Mill on the banks of La Rivière Seine (or German Creek). Traversed a straight dry track running by the side of German Creek for some miles and nearly the whole distance through a country fit for settlement, particularly at Oak Creek (where camp is pitched to-night), there being plenty of fire-wood and oaks sufficiently large for building purposes. Rich loamy soil. Has been an oppressively hot day - - - - -	18.00	20.00
No. 140	<i>September 24.</i> —Left Oak Creek and continued southerly across an extensive tract of prairie land with occasional wet places, but upon the whole well adapted for a road and for settlement. Land excellent. Vegetation luxuriant. Plenty of woods. Fine hay and pasture meadows. Good water. Camped one mile south of German Creek - - - - -	20.00	40.00
No. 141	<i>September 25.</i> —Cloudy. Thunder in the distance. Wended through a tangled jungle of osiers and red willow concealing burnt logs of aspen, until reaching an extensive <i>bois brûlé</i> , through which the carts could not be hauled on account of the windfalls and the great quantity of prostrated burnt timber. Left the carts, and taking a fortnight's provisions continued the survey with pack-horses. Made slow progress along the valley of German Creek through a close forest of burnt timber. Soil lighter, but still good and dry. The bill-hook and axe is all that is required for making a road here. Observed for latitude and variation - - - - -	- -	51.00
No. 142	<i>September 26.</i> —Resumed the journey up German Creek, traversing a country with lighter soil and timber, but still supporting luxuriant vegetation, and well adapted for a road. Bridged a creek and crossed one or two marshes on account of the thickness of the forest, but a dry road could be located in the <i>bois brûlé</i> . Thick groves of cypress, spruce, young aspen, and willow. Camped at a place where the wood became so amazingly dense and so strewn with fallen logs that pack-horses could not force their way through. Cloudy and rainy - - - - -	14.00	65.00
No. 143	<i>September 27.</i> —Slept beneath some large balsam-spruce and poplar last night, and rising this morning before sunrise, started on foot to make an attempt to reach the Lake of the Woods. Reached La Rivière Seine after much toilsome climbing and scrambling over high heaps of fallen trees lying in every direction. Here the Indian guide (Penisi, "the little bird") came to a halt, and, although tempting offers were made to him, he could not be persuaded to go farther, having reached the boundary of the lake of the Woods Indian's country. On this account, as well as owing to the nature of the country—there being a tamarack and cedar swamp from hence 15 miles wide, which would take three days to cross on foot before arriving at the next dry ground—it was deemed expedient to return - - - - -	4.00	69.00
No. 144	<i>September 28.</i> —Retraversed the tract of country examined yesterday and the day before and camped near Morin's house, the nucleus of a new settlement beginning, at the crossing place of La Rivière Seine.		
No. 145	<i>September 29.</i> —Forded La Rivière Seine and followed a good trail leading a considerable distance north of the river. Crossed a dry level prairie with much good land. Rested an hour and a half at a portion of the river rising in a marsh and flowing by the side of a tamarack and spruce swamp. Continued along a good track passing occasionally through willow marshes and wet meadows. Camped near the site of camp 135. Good pasturage and hay ground.		

## (XIV.)

FROM RED RIVER WESTWARD ALONG LA RIVIÈRE SALÉ—THENCE SOUTH-WESTWARD TO PEMBINA MOUNTAIN—THENCE ACROSS THE BLUE HILLS OF THE SOURIS—THENCE ACROSS THE ASSINNIBOINE TO PRAIRIE PORTAGE.

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 146	September 30.—Very cold last night. Struck camp (145) and moved the train across to the west side of the river, to commence an exploration of the country between the Assinniboiné and the United States frontier. Proceeded along the Pembina trail for about five miles, and camped. Fine evening. Settlers drawing their nets in the river - - - - -	—	5'00
No. 147	October 1.—Heavy rain towards morning. Left the Pembina trail where it intersects La Rivière Salé 9'15 miles from Fort Garry. Proceeded up the south bank of La Rivière Salé, across a beautiful fertile prairie, and rested at a bend of the river where there are numerous salt springs. Camped 12 miles from the mouth of the river, on a magnificent treeless level prairie. Fine farming and pasture land. The river yields plenty of fish, and swarms with duck and geese at certain seasons. Has been an unpleasantly hot day. A smoky appearance all around - - - - -	16'25	21'25
No. 148	October 2.—Much rain last night. A dark, foggy, warm morning. Journeyed on from point to point of the river, which is now larger, and meanders, with a margin of large elm and oak, through a boundless open prairie. Traversed to-day as well as yesterday a very beautiful and fertile district, most suitable for a settlement, especially along the river, where the timber is very good, consisting chiefly of oak, but there is also much elm and ash. A steady pouring rain came on at 10 a.m., and compelled an early camp near Landrie's house and farm, a pioneer settlement on the banks of La Rivière Salé, about 20 miles from its mouth - - - - -	8'00	29'25
No. 149	October 3.—Great quantity of rain fell last night and this morning. Wind high and very cold. Left camp and continued close along the river until reaching a point where it is crossed by the buffalo hunters' trail, leading from the White Horse Plains to Turtle Mountain. There being numerous muskegs (marshes) beyond this point, the carts were left here, and a reconnaissance of the river made on horseback until reaching a fork which could not be forded, and above which La Rivière Salé becomes very small. Returned and camped at the crossing place, as the hunters' trail, which has to be pursued now to Pembina Mountain, leads across a boundless prairie, upon which wood and water cannot be reached to-night - - - - -	11'00	40'25
No. 150	October 4.—Took the hunters' trail at daybreak and continued across a most truly magnificent treeless prairie, luxuriantly clothed with long waving grass, wonderfully thick. Rested for two hours at noon beside a clump of willows, breaking the monotony of an unbounded oceanlike plain. Crossed afterwards alternate wet and dry prairies, until reaching La Rivière d'Isle des Bois. Camped at sunset on the banks of this affluent of Scratching River. Observed for latitude and variation. Some wet land here, but much that is dry and excellent. Plenty of good oak timber along the river. Has been a lovely day, bright and sunny, but rather cold - - - - -	27'00	67'25
No. 151	October 5.—Raised camp and crossed La Rivière d'Isle des Bois, which is 15 feet wide and two feet deep. Traversed a fine fertile country, sprinkled here and there with clumps of young aspens and a few oaks. Dined at La Rivière Tabac, another small tributary of Scratching River. Continued across a fine open prairie, and passed over the bed of an ancient lake three-fourths of a mile in diameter. Crossed some feeble streamlets and the dry beds of ancient water-courses before camping at Little Bridge Creek, a partially dry stream with many stagnant dilatations.* Very stormy and rainy at night - - - - -	19'00	86'25
No. 152	October 6.—Morning cloudy; cold N.W. wind. Reached the base of Pembina Mountain or Ridge after two miles' travel from Little Bridge Creek, past open woods of oak, the commencement of "the (so-called) forest," which stretches hence to Prairie Portage. Ascended Pembina Mountain, which is here nothing but a long gradual ascent, or rather a succession of easy steps rising from a lower prairie plateau to a more elevated table land. The flank of the "Mountain," from the base to the summit, is clothed with groves of oak and aspen, and strewn with innumerable boulders. Entered upon the "round prairie," after gaining the crest of the mountain. Here a solitary half-breed, who had deserted from a band of buffalo hunters, came out of a clump of willows, and looked with astonishment upon the train. He was at first thought to be a Sioux spy. Crossed the "round prairie," which separates Pembina Mountain from the Blue Hills, and halted at noon beside a clump of oak separated by a lakelet from a high conical knoll called the Calf's Tent. Left the hunters' trail to Pembina, and commenced a westerly course amidst thick clumps of poplar and willow. Poor grass and no water at night camp. Has been a miserable cold day; frequent showers of sleet with high wind - - - - -	19'50	105'75



Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 153	October 7.—Cold and stormy last night. Ground this morning covered thickly with snow. Vigilant precautions observed at camp as usual, and a sharp look-out kept for Sioux upon the trail. Crossed an undulating prairie, and entered a very hilly district without water, said to be the commencement of the Blue Hills. Skirted "Le Grand Coulé," a dry valley 10 chains wide, and camped upon crossing one of its ramifying branches, having found in it a scanty supply of water at last. Undulating country. Light sandy loam. Clumps of willows and aspens. Short scanty grass. Has been one of the coldest days this season. Freezing, and a high westerly wind the whole day - - - - -	13.50	119.25
No. 154	October 8.—Hard frost last night. Morning calm and cloudy. Turned back a short distance upon the course of yesterday, and then struck northerly in order to make a close examination of the poplar forest, "Le Grand Bois" of the buffalo hunters, which is always in view on the right, but still a considerable distance off (5-6 miles). Halted to observe for latitude, and search for water for the animals, soon after entering the so-called forest, which is nothing more than a succession of close clumps of young aspen, poplar, and willow, partially clothing a high upland country. The men despatched in quest of water had to go about four miles before finding any. Camped near a small lake encompassed by burnt timber on the north, which prevented a passage that way. Grazing very poor and scanty. Has been a bright and warm day. Light wind. Quite calm in evening - - - - -	9.50	128.75
No. 155	October 9.—Left camp and went round by the south end of the lake, which is about a mile long. Pursued a winding course, over a hilly district, amidst dense groves of poplars, almost a forest. Soil sandy and clayey loam. Fragments of shale appear wherever the ground is turned up by badgers. Got out of the thickest part of the forest after much wandering too and fro in search of a good track for the carts. Filled the water casks at a lake two miles long, and crossed an undulating tract densely covered with willow bushes. At 4 p.m. came upon the trail which was left yesterday morning. Camped after some miles' travel westward across an undulating district, partially clothed with brushwood. Has been a beautiful day, quite mild - - - - -	14.50	143.25
No. 156	October 10.—Froze very hard last night. Very cold this morning. Started from camp at daybreak. Forded a swampy brook (half a mile from camp) before crossing a ridge or narrow chain of stony hills, 30-90 feet high, running N.W. and S.E. Crossed several streamlets, and rested at noon on an undulating prairie, surrounded by round hills. A very heavy rain came on in the afternoon, and compelled an early camp. More hilly than heretofore. Round long hills, like ridges; and conical hills. Clumps of poplars here and there, and willows spread all over, where formerly there was a dense poplar forest. A few oaks struggling for existence, but many prostrated. The main woods seen on the right five to seven miles away - - - - -	18.00	161.25
No. 157	October 11.—Rained till dawn, then snowed till 6 a.m. A gloomy, cold morning. A flock of geese flying to the south was brought down this morning, by imitating their cry, and one of their number killed. Resumed the journey along the edge of "Le Grand Coulé de la Grosse Butte," a very deep dry valley. Crossed this great unwatered valley, which derives its name from a very prominent object, La Grosse Butte, a solitary conical hill 200 feet high, two and half miles to the south. Continued along the south side of Le Grand Coulé over an undulating country. In crossing a small creek, flowing in a deep valley, before entering a very hilly district, some of the horses got mired. Crossed several ranges of hills and dales, and camped on the margin of a small lake in the centre of the Blue Hills - - - - -	11.00	172.25
No. 158	October 12.—Pursued a winding course over the Blue Hill range, and forded Cypress River, (a tributary of the Assinniboine,) after passing several beautiful lakes embosomed in wooded dells. To-day's journey was rather heavy for the animals, being so much up hill and down dale. Camped upon crossing a deep, broad, dry valley, as large as that of the Assinniboine. The Blue Hills terminate at this valley, being all on the east side of it. Some of the hills near it are 200-300 feet high, and many of them are crowned with oaks and poplars. Thick fog in the afternoon, and heavy rain commenced at 7 p.m. - - - - -	21.50	193.75
No. 159	October 13.—Rain alternately with snow lasted the whole night. Raining and sleeting all the morning. Took a northerly course towards the Assinniboine. Traversed a level soft prairie, and found some difficulty in crossing a swampy creek. Crossed a plateau covered with young oaks, succeeded by sand hills extending to the Assinniboine. Forded the Assinniboine, and struck north-easterly across a region of sand hills sparsely covered with "creeping juniper," stunted aspens, and oaks. Camped at 5 p.m. Scarcely any grazing. Water in ponds - - - - -	13.00	206.75

Camp.		Main Track, distance from—	
		Preceding Camp.	Fort Garry.
		St. Miles.	St. Miles.
No. 160	October 14.—Resumed the journey across sand hills covered with ground juniper and “Kini-kinik.” At 10.20 a.m. came upon the trail which was pursued by the train whilst <i>en route</i> to the Little Souris in June. Recognized it by a collection of small skulls of rabbits hanging on trees,—Indian offerings to Manitou. Camped after seven hours’ travel from this point - - - - -	22.50	229.25
No. 161	October 15.—Started early, and arrived at Prairie Portage at noon. Pitched camp near the site of camp (4) of June 17. Rain set in. Distant thunder—	13.50	242.75
„	October 16.— <i>Prairie Portage</i> .—Turned the animals into the glebe to graze, through the kindness of Archdeacon Cochrane. Most of the day occupied in endeavouring to procure a guide or packman, and preparing for a traverse on foot into the forest on the south side of the river. Set in very wet in the evening.		
„	October 17, 18, 19.— <i>Prairie Portage</i> .—Occupied three days in making explorations of the poplar forest, and in traversing the belt of heavy hardwood lining the valley of the Assiniboine, for description of which see Reports of Progress, page 31.		
„	October 20.—Started with the train at sunrise from Prairie Portage for Selkirk Settlement, taking the inner trail leading close along the Assiniboine, there being more wood and water that way. Much snow in places.		

(XV.)

FROM SELKIRK SETTLEMENT TO THE SALT SPRINGS ON WINNIPEGO-SIS LAKE AND THE SUMMIT OF THE RIDING MOUNTAIN, *viâ* THE WEST COAST OF LAKE WINNIPEG, THE LITTLE SASKATCHEWAN OR DAUPHIN RIVER, ST. MARTIN’S LAKE, PARTRIDGE CROP RIVER, MANITOBAH LAKE, WATER-HEN RIVER AND LAKE, WINNIPEGO-SIS LAKE, MOSS RIVER, AND DAUPHIN LAKE.

Camp.		Main Track, distance from—	
		Preceding Camp.	Middle Settlement.
		St. Miles.	St. Miles.
No. 162	September 18.—Embarked in a freighter’s boat equipped for a lake voyage with a crew of seven voyageurs. Hoisted sail and got underway from the Middle Settlement at 10 a.m. Ran at a good rate before a light southerly breeze down the Red River. Passed the Stone Fort and landed at Sugar Point at noon to cook dinner. Camped below the Indian Village at sunset. Weather warm, and mosquitoes troublesome in evening. Comet visible - - -	- -	26.00
No. 163	September 19.—Pushed off at daybreak, sailing and rowing alternately. Reached the mouth of Red River (“north branch”) at 10 a.m., and pulled 2½ miles northward into Lake Winnipeg with the intention of sailing to a point south of the Willow Islands, but a heavy fog coming on with a head wind from the north, the boat had to be put about and steered back to the mouth of the river through the mist. The fog cleared off at noon, but the unfavourable wind freshened up and prevented farther progress - - -	7.00	33.00
„	September 20.— <i>Mouth of Red River</i> .—Same camp. Windbound. Wind continued high during the night, and blew hard all day from the north. A very stormy sea on the lake, and the bar covered with huge breakers. Cold and cloudy all day. Duck and geese southward bound flying very high and swift before the gale. Examined the coast.		
No. 164	September 21.—Wind went down during the night. Started from the mouth of the river before daylight. Sounded across the bar, and pulled from point to point along the coast; taking the courses and computing the intermediate distances by dead-reckoning. Although a track survey of this coast had just been completed in canoe, it became necessary to delineate the boat’s track along the coast, in order to plot upon the chart the soundings which were made with the hand lead at intervals of 10 minutes or oftener if necessary, whilst the boat was in motion, commencing at the mouth of Red River. Observed frequently with an improved log-line to obtain the rate of the boat, making the requisite allowances and corrections. Cooked dinner at the first point beyond the Willow Islands. Met here an Indian, in canoe, from whom a mouse nose was procured. Rowed on till a little after dark, and camped near Drunken River. Has been a beautiful day. Cold in the morning - - - - -	26.50	59.50



Camp.		Main Track, distance from—	
		Preceding Camp.	Middle Settlement.
		St. Miles.	St. Miles.
No. 165	<i>September 22.</i> —Left Drunken River at 4.50 a.m. Spread sail and ran swiftly before a fair wind past the Sandy Bar and through the Grassy Narrows. Stopped to cook breakfast upon Guano Island, and set sail again, taking a straight course past the Greater and Lesser Black Islands, to Deer Island, to examine a very fine exposure of limestone and sandstone upon it. Saw Magnus' brigade of boats from York Factory scudding along the main shore some distance off. Remained 3½ hours upon the island collecting specimens, &c. Resumed the voyage at 4.40, and sailed to Grindstone Point, where the boat was hauled up and camp pitched at 7 p.m. On this last traverse the lead showed a depth of 8–9 fathoms,—the deepest yet recorded - - - - -	41·00	100·50
No. 166	<i>September 23.</i> —The morning occupied in examining the rock and obtaining specimens. Embarked at 8.30 a.m. to make the traverse to the N.E. shore of the lake. Sailed with a "crimp" wind until making the little Granite Islands, when the wind chopped round and blew hard from the north. The boat being very leewardly on account of the flatness of her floor and the want of keel, it was found necessary to put about and seek shelter. Found a harbour at Punk Island, after driving before the gale upon a retrograde course. Rain set in and wind continued high all day, compelling a camp, but the time was occupied in exploring the island and the rock escarpments exposed upon it - - - - -	3·50	97·00
No. 167	<i>September 24.</i> —Aroused the crew at 2, and got underway at 3 a.m. (long before daylight). Pulled out a short distance and raised sail. An E.S.E. wind pushed the boat on at a good speed across Great Washow Bay and past the Bull's Head. Stopped at 8.20 a.m. at Limestone Cave Point. Embarked again after examining the outcrop of rock and collecting fossils. Sailed through the Dog's Head Straits, thence across the mouth of Fisher Bay, past Black Bear, Great Moose, and Juniper Islands, to the Pike Head. Cooked dinner at the Pike Head River, and started again. Continued sailing on past Wicked Point, Cat Head, &c., and stopped to camp at 11 p.m. at Point Turnagain, after 20 hours' travel. Lay down to rest on the beach at midnight - - - - -	81·50	178·50
No. 168	<i>September 25.</i> —Raised camp at 3, and started at 4 a.m., recording the courses and soundings, and registering the boat's rate and time, by lamp-light. Ran with a light breeze past Bushkega Islands, and, after daylight came in, took a straight course from the Sturgeon Isles to the Little Saskatchewan. Made close soundings over the bar and entered the mouth of the river at 9.30 a.m. Pulled and tracked until reaching an Indian encampment some distance up the river. The Indians, on seeing the boat approaching, commenced a brisk fusillade with their flint guns. This welcome salute caused numbers of Indians to congregate here from all points - - - - *	28·00	206·50
No. 169	<i>September 26.</i> —Tracking up this rapid river is slow and laborious work; the tracking ground is bad, and it requires four men attached to the towing line to haul the boat. Reached the end of the tracking ground, or where the river flows through a vast marsh, at 3.20 p.m., and camped (there being a strong head wind from the south), as the oars could give the boat no headway against the strong wind and current. Plenty of cranberries near camp. Indians have followed the boat all day in their little canoes, the squaws dragging them with lines of twisted bark passing round their bodies - - - - -	15·00	221·50
No. 170	<i>September 27.</i> —Sailed in many of the reaches of the river with rather a squally wind. Entered St. Martin's Lake at noon, and stopped at a boulder-point three miles from the commencement of the Little Saskatchewan. Could not proceed farther than this point in consequence of a high adverse wind blowing. Shot a laughing goose. The marsh here is encompassed by a semicircular barrier of boulders - - - - -	6·00	227·50
No. 171	<i>September 28.</i> —Lake calm. Started a little before daylight. Rowed through the narrows, sounding every minute, and stopped for breakfast at 7.40 on Sugar Island. Collected some specimens of the rock formation, and steered for three small gneiss islands (St. Martin's Rocks); pulled thence to Thunder Island, and procured there a number of fossils from an exposure of limestone. Started again, after a heavy thunderstorm had passed over, and pulled against a headwind to Fisher Island, which was reached at dark. Moored the boat and slept in her, there being no camping ground on shore -	22·00	249·50
No. 172	<i>September 29.</i> —Much rain last night. Entered the mouth of Partridge Crop River at 10 a.m. Proceeded up this stream, meandering by many channels through tall reeds and rushes, and arrived at Fairford at 3 p.m. The Indians had arrived some hours in advance, and they became very noisy in the evening after receiving their annual supply of liquor at the Hon. Hudson Bay Company's Post here. Frost at night - - - - -	15·00	264·50
No. 173	<i>September 30.</i> —Entered Lake Manitobah at noon. Coasted along the east shore, and camped at 6 p.m. at Flat Rock Bay, in order to examine a highly fossiliferous exposure of limestone. Some stunted poplar, birch, and oak along the coast. Tamarac swamp in the rear - - - - -	12·00	276·50

Camp.		Main Track, distance from—	
		Preceding Camp.	Middle Settlement.
		St. Miles.	St. Miles.
No. 174	October 1.—Took in a number of specimens, and pulled to Steep Rock Point to examine another outcrop 20 feet high; thence made a straight course across the lake to Point Pao-nan, sounding, &c., as usual. Passed between the point and Cherry Island at noon; thence ran on with a fair wind till 7.30 p.m. (after dark), and camped at Sandy Point on the west side of the lake - - - - -	27·00	303·50
No. 175	October 2.—Hoisted sail and started at 6 a.m. A heavy rain commenced at 8 a.m. and continued all day. Took breakfast at 10.25 a.m. on an island off the mouth of Water Hen River. Struck sail and pulled up Water Hen River through a great marsh. Camped at 4 p.m. on the first wooded dry ground reached - - - - -	30·50	333·50
No. 176	October 3.—Continued tracking and rowing up Water Hen River alternately. Reached the "Turning Point" at sunset, and camped near some Indian and half-breed saltmakers, who were proceeding in a boat to Oak Point with a cargo of salt from the Salt Springs. Flat swampy country, poorly timbered. River shallow in some places - - - - -	14·25	347·75
No. 177	October 4.—Clear and frosty last night, with a strong N.W. wind. Passed the southern extremity of Water Hen Lake (apparently a dilatation of the river), and sailed through the remainder of the river into Winnipegosis Lake. Stopped to cook dinner at Point Ermine, and sailed upon a straight course thence to Snake Island. Slept in the boat - - - - -	25·00	372·75
No. 178	October 5.—Cold morning. Collected some very fine specimens and fossils from the limestone exposed on Snake Island. Saw vast numbers of "scarfs" (crow ducks) flying. Embarked at 10 a.m., and ran at a high speed under reefed canvas to the Salt Springs. Had to discharge cargo rapidly and haul the boat up on the beach, having landed on a lee shore. Engaged during the rest of the day in examining and surveying the Salt Works, and measuring the height of the springs above the lake. Wet weather. Shot a number of ducks - - - - -	5·50	378·25
No. 179	October 6.—Left the Salt Springs at 10, and reached the mouth of Moss River at 11 a.m. Passed a good log-house built and inhabited by Indians on the banks of the river. Upon halting to examine a rock exposure half a mile from the lake, the Indians came up requesting a "smoke." Continued up-stream, and camped after ascending the second rapid. The first rapid falls 2½ feet, and is very shoal and full of boulders. The boat had to be lightened and poled up. The second rapid is 10 chains long, and has a fall of 2½ feet. In order to ascend it the boat had to be emptied and dragged up,—all hands wading in the water except the steersman. Some good land on the immediate banks of the river, but it soon passes into muskeg -	10·25	388·50
No. 180	October 7.—Started at 7, and reached the third rapid at 8 a.m. Poled the boat up. Fall, 18 inches. Length, 3 chains. Entered Dauphin Lake at 4 p.m., and continued along the west coast till 6 p.m. Had a magnificent view of the Riding Mountain upon entering the lake. Very cold and raw during the day - - - - -	16·75	405·25
No. 181	October 8.—Coasted five miles farther, and landed at a point wooded with oaks, near a great marsh in which were vast flocks of ducks and geese. Levelled to obtain a profile of the country surrounding the lake. Hauled up the boat and made preparations to start on foot for the summit of the Riding Mountain to-morrow. Fine country for grazing. Has been a fine day - - - - -	5·00	410·25
No. 182	October 9.—Left the boat in charge of three men, and started with the remainder of the party to make the ascent of the Riding Mountain. Pursued a straight southerly course to the highest or nearest peak of the mountain, measuring the distances by pacing and by rate. Crossed some fine meadow land, then entered upon a very wet marshy country. Open marsh and savannah between dry gravelly strips covered with scrub poplar alternating with quaking bogs and alder and tamarack swamps. Rested for the night on a scrub oak ridge, after a cold, wet, fatiguing march - -	11·00	421·25
No. 183	October 10.—Commenced ascending the slope of the mountain this morning. Found it rather toilsome work, tearing through tangled brushwood in a thick forest, and crawling up the steep acclivities. Whilst taking dinner upon a high rounded peak within two miles of the summit, a brown bear made his appearance. A well directed shot brought him down as he was walking quietly off. Ascended to the summit, and made a camp of brush to keep off a heavy snow that came on. Supper of bear's meat - -	7·50	428·75



(XVI.)

FROM THE SUMMIT OF THE RIDING MOUNTAIN TO MANITOBAH HOUSE AND ISLAND.

Camp.		Main Track, distance from—	
		Preceding Camp.	Riding Mountain.
		St. Miles.	St. Miles.
No. 184	October 11.—The whole face of the country covered with snow, which fell to the depth of six inches last night. Commenced the descent of the mountain after making several traverses into the heavy forest which grows on the fine table-land on the summit. The descent was rather difficult, the steep slopes being rendered very slippery by the snow. Trudged on through melting snow and slush until reaching the end of the solid ground at the foot of the lowest slope, and camped very wet and cold. Rain and sleet - - - - -	-	7'50
No. 185	October 12.—Commenced the march early this morning across quaking marshes and muskegs which occupy the region between the base of the mountain and Dauphin Lake. Reached the boat encampment at 2:30 p.m., and spent the remainder of the day in drying wet clothes, &c. - - - - -	11'00	18'50
No. 186	October 13.—Launched the boat and coasted round to a point near the mouth of Turtle River from whence the exploration across the country to Manitobah House commences. Camped here in order to procure Tâwâpîit or one of his sons as Indian guide - - - - -	7'60	26'10
No. 187	October 14.—Started with Tâwâpîit's son at dawn, for Turtle River, leaving Dauphin Lake on our left. Crossed Turtle River at 10, and entered a region of bog, marsh, and aspen ridge. The abrupt flanks of Riding Mountain continued visible for many miles. Camped at night on a ridge. Bogs very bad, fully three-quarters to four-fifths of the country is bog and marsh. Night cold. Hard frost - - - - -	21'00	47'10
No. 188	October 15.—Arrived at the Ridge Pitching Tract at 9'30 a.m. Pursued the excellent road it offered for 3½ miles, then struck into swamps and bogs again. Horses mired. Were compelled to carry food and blankets and force the horses through the bogs; at 3 p.m. reached Crow Creek, and in half an hour Sucker Creek. Arrived at night-fall at Ebb and Flow Lake much fatigued - - - - -	27'00	74'10
No. 189	October 16.—Slept in Ojibway birch bark tent. Excellent breakfast of white fish, potatoes, and rabbits. Indian boy brought in a mink he had trapped. The Indian to whom the tent belonged has already set 70 traps, and the hunting season for most fur-bearing animals is begun. Galloped on an excellent buffalo runner to Manitobah House passing through a low, wet, but good grazing country—arrived at Manitobah House at noon - - - - -	12'75	86'85
No. 190	October 17.— <i>Manitobah House.</i> —Sunday. Stormy and cold. Stayed at Manitobah House enjoying the hospitality of Mr. and Mrs. Mackenzie. Messenger arrived from Fairford. Snow-storm began in the afternoon—continued all night.		
"	October 18 and 19.— <i>Manitobah House.</i> —Snow covers the ground nine inches deep. Snow-birds in flocks—ducks flying south. Day passed in writing letters and journal. Wrote report. South wind. No boat.		
"	October 20 and 21.—South wind. Smoke from the burning prairies. Warm days, snow melting fast. Men's allowance at this post three white fish per day. Walked through surrounding country; visited the Freeman's House and the Fish Stages. Found limestone exposure with glacial groves; also a former lake ridge, 14 feet above present altitude. Drift clay, four feet deep. Gneissoid and limestone boulders.		
"	October 22.— <i>Manitobah House.</i> —Visited and explored the Sugar Island. The mouth of Ebb and Flow Lake. The Narrows. Shot "stock" ducks. Immense accumulations of reeds about the islands and Ebb and Flow Lake. Prepared for voyage to Manitobah Island.		
No. 191	October 23.—Started with Whiteway at 10 a.m. in company with the carpenter (half-breed), who built Mr. Mackenzie's house. Reached island at noon. Explored and made plan of island and surrounding country. Collected fossils. Camped on Manitobah Island - - - - -	9'50	96'35
"	October 24.— <i>Manitobah Island.</i> —No boat or any sign of division from Dauphin Lake. Saw Indians, but they would not approach the island. Made a collection of the different strata of rocks, plants, shrubs, &c. South wind. Beautiful weather, being the warm, genial periods called Indian summer. Whiteway hunted—killed duck and mink. Indians hunting near but would not approach the island.		
"	October 25.— <i>Manitobah Island.</i> —Lovely day. Canoeed round the coast. Prepared a large beacon fire. At 10 p.m. boat arrived, and the whole party camped on the island.		

## (XVII.)

FROM DAUPHIN LAKE TO OAK POINT ON LAKE MANITOBAH, THENCE TO SELKIRK SETTLEMENT.

Camp.		Main Track, distance from—	
		Preceding Camp.	Dauphin Lake.
		St. Miles.	St. Miles.
No. 192	October 13.—Started at 3 p.m. from a point near the mouth of Turtle River after disembarking the division which was to make an overland journey to Manitobah House. Ran along the east coast of Dauphin Lake, sounding as heretofore, as far as the wind would permit, and camped at sunset. Clear and frosty - - - - -	-	8'00
No. 193	October 14.—Unable to advance this morning in consequence of a strong head wind blowing from the N.W. Got underway in the evening, the wind having fallen. Rowed steadily along the N.E. shore until 10'20 p.m., when the boat was moored for the night, as the moon became obscured with clouds and haze - - - - -	10'00	18'00
No. 194	October 15.—Entered Moss River after an easy run with a light wind. Arrived at the Indian house, near the mouth of the river at 6 p.m., and stopped for the night. The Indians gave us a feast of moose nose in their warm and comfortable log shanty. Very cold and cloudy - - -	17'50	35'50
No. 195	October 16.—Strong head wind blowing from the east across Lake Winnipegosis this morning. Had some heavy pulling from the time of entering the lake until getting to leeward of a point about two miles from the mouth of Moss River. Wind blew from same quarter till evening, when it veered round to the north-west, causing the surf to beat upon the beach with great violence. Hauled up the boat high and dry after discharging the heavier part of her lading. Examined the coast, and collected fossils from rock in position. Much rain during the day - - - - -	2'00	37'50
"	October 17.—Same camp. Aroused the crew at 3 a.m., as the wind had increased in violence, and the water had risen so much ( $2\frac{1}{2}$ feet) that the breakers threatened to knock the boat to pieces. Discharged everything from the boat, and spent most of the night in dragging her over the beach to save her from the fury of the waves. Gale from the N.W. blew hard all day. Cold and snowing.		
No. 196	October 18.—Four inches of snow on the ground this morning. Wind blew from the same quarter till noon, when it turned a little more to the west—sufficiently favourable to take the boat across the lake. Had some difficulty in launching the boat on account of the heavy surf. Pulled against the wind to the point and hoisted sail. Ran under close-reefed canvas, with a side wind, to Salt Point, thence pulled along the west shore of the inlet of Waterhen River, and camped on a point where an old half-breed man and his Indian wife were "tenting" - - - - -	12'75	50'25
No. 197	October 19.—Got underway before daylight, a fair wind from the south having sprung up. Took the eastern branch of the Waterhen River running from the inlet to the great bend. Course lay against the wind beyond Waterhen Lake. Camped at a quarter to 7 p.m. near the islands or narrow part of the river after heavy pulling all afternoon. Observed the magnetic variation of $16^{\circ} 15' E.$ - - - - -	25'00	75'25
No. 198	October 20.—Reached the mouth of the river and entered Lake Manitobah at noon. Met four boats bound to the Salt Springs for cargoes of salt. Sailed, with the wind on starboard quarter, to Basin and Elm Islands. Had to stop on the latter in consequence of the wind becoming contrary. Has been a beautiful day—the beginning of Indian summer - - - - -	15'00	90'25
No. 199	October 21.—Embarked at 8:30 a.m. The lake nearly calm. A light wind from the south. Rowed to a point on the mainland and collected a number of geological specimens at an outcrop of horizontal limestone. Pulled on, over the calm surface of the lake, and halted to cook supper opposite the "Point without Poles." Embarked again at 8 p.m., and ran with a light breeze, on the course to Point Pao-nan. A fog arose at 10 p.m., and the shore was made with difficulty some distance short of the point. Has been a beautiful Indian summer-day. Warm and hazy. Sounds audible a great distance - - - - -	36'00	126'25
No. 200	October 22.—Set sail at daylight. Ran with a "crimp" wind past the Pao-nan and across to the other side of the lake to a point which the boat was unable to weather, and beyond which the course along the coast lay against the wind. Hauled the boat up on the gravel beach, enclosing a marsh which lines the coast everywhere. Fine Indian summer-like day - - - - -	10'00	136'25
"	October 23–24.—Same camp. Wind still contrary. Blew hard from the south these two days and nights. Shot a number of prairie hen on the point. Observed the magnetic variation of $15^{\circ} E.$ on the 23rd. Cold, cloudy, and raining at intervals on the 24th. No wood on the point. Unable to keep up a fire.		



Camp.		Main Track, distance from—	
		Preceding Camp.	Dauphin Lake.
		St. Miles.	St. Miles.
No. 201	October 25.—The wind moderated at noon. Shoved off the boat and started at 2 p.m., but had some heavy pulling, and made little headway against the wind until sunset, when it became quite calm. Stopped at the narrows at 8 p.m., and sent men ashore to cook supper, the water being too shoal to allow the boat to get near the land. Started again, and plied the oars until 10·15 p.m., when a beacon fire and some signal shots on Manitobah Island revealed the camp of the division which had come round from Riding Mountain to this point - - - - -	11·00	147·25
No. 202	October 26.—Embarked at 7 a.m., and pulled through the narrows against a light southerly wind until reaching Manitobah House at 1.30 p.m. Started again at 3, rowing against the same wind till 5 p.m., and camped upon Pelican Island - - - - -	13·60	160·85
No. 203	October 27.—Started before daylight. Pushed on along the N.E. shore of the lake until arriving at Monkman's Point, near Swan Creek. Found Monkman and some others from Red River fishing here. They had a large number of white fish drying and smoking for winter use. Beautiful aurora at night - - - - -	27·50	188·35
No. 204	October 28.—Sharp frost last night. Ran along shore with a light N.E. wind and turned into the channel which leads across Marshy Point through a vast marsh. Got out of marsh at 1 p.m. after much difficulty, having to drag the boat in many places through mud where the water is shallow. Arrived at Oak Point at 2 p.m. A number of Red River settlers encamped here in Indian wigwams, carrying on their annual autumn fishing. Hauled up the boat on rollers, and loaded three ox carts with the cargo of baggage and fossils to be transported to Selkirk Settlement. Encamped near John Monkman's house, half a mile from the lake - - - - -	10·00	198·35
No. 205	October 29.—Very sharp frost last night. Procured three horses from John Monkman and started with the train of ox carts for Red River. Crossed a rich and fertile prairie, with scattered groves of scrub oak, poplar, and willow. Camped at sunset beside a clump of poplar saplings on an area of dark rich soil with gravelly subsoil - - - - -	13·00	211·35
No. 206	October 30.—Hard frost last night. Skirted the south-western shore of Shoal Lake past a fine locality for a settlement—the land being rich with beautiful grassy lawns and hay meadows, between oak orchards and belts of poplar near the margin of the lake. Camped at "Bell's Hummock," a clump of fair sized poplar, enclosing a pond of good water. A favourite camping place - - - - -	19·00	230·35
	October 31.—Froze very hard last night. Took an early start and reached Stony Mountain at noon after traversing several low ridges intersecting beautiful prairies. Spent two hours and a half in quest of fossils at the mountain and pushed on to the settlement. Reached the Scotch church at 6.30 p.m. - - - - -	37·00	267·35

DISTANCES FROM FORT GARRY TO IMPORTANT POINTS IN RUPERT'S LAND.

Description of Route.	Localities.	Intermediate Distances.	Distance from Fort Garry.	Remarks.
Cart Trail	Fort Ellice - - - - -	St. Miles. —	St. Miles. 236·11	Viâ the White Mud River trail.
" "	Qu'Appelle Mission - - - - -	136·57	371·68	" the trail south of the Qu'Appelle.
" "	Elbow of the South Branch of the Saskatchewan - - - - -	176·73	548·41	" the Qu'Appelle Valley.
Cart Trail	Fort Pelly - - - - -	—	339·65	Viâ Fort Ellice and the trail on the west side of the Assinniboine.
Cart Trail	Touchwood Hills - - - - -	—	387·98	Viâ Fort Ellice and the Carlton trail.
" "	Grand Forks of the Saskatchewan	184·91	572·89	" the trail.
Boat Navigation	Little Saskatchewan or Dauphin River - - - - -	—	206·50	Viâ the west coast of Lake Winnipeg.
" "	Main Saskatchewan - - - - -	137·93	344·43	" " " "
" "	Grand Forks of the Saskatchewan	354·27	698·70	" the Saskatchewan River.
" "	Elbow of the South Branch of the Saskatchewan - - - - -	249·73	948·43	" " "

EPITOME of EXPLORATIONS and SURVEYS of this Expedition in RUPERT'S LAND, or the North-West Territory, between the United States Frontier (49th Parallel) and Latitude 54° North; and between Longitude 96° and 107° West of Greenwich, not including lateral traverses.

	Statute Miles by main track.
*1. Fort Garry to Mouse River and the Boundary Line - - -	267·80
2. United States Frontier to Fort Ellice - - -	117·70
3. Fort Ellice to Qu'Appelle Mission - - -	135·57
4. Qu'Appelle Mission to the Saskatchewan (South Branch) - -	176·73
5. Qu'Appelle Mission to Mouth of Qu'Appelle River - - -	256·59
6. Fort Ellice to Swan River - - -	112·95
7. "River that Turns" to Fort à la Corne - - -	269·88
8. Fort Pelly to the Little Saskatchewan or Rapid River - -	147·28
Little Saskatchewan from Riding Mountain to the Assiniboine -	94·87
9. Little Saskatchewan to Fort Ellice - - -	70·85
10. Fort à la Corne to Fort Ellice - - -	336·78
11. Fort Ellice to Red River - - -	236·11
12. Fort à la Corne to Lake Winnipeg and Red River - - -	711·80
13. Red River towards Lake of the Woods - - -	69·00
14. Fort Garry to Pembina Mountain, &c. - - -	242·75
15. Red River to the Salt Springs and Riding Mountain - -	428·75
16. Riding Mountain to Manitobah House and Island - - -	96·35
17. Dauphin Lake to Red River - - -	267·35
Aggregate length of Main Lines of Exploration - - -	<u>4,039·11</u> Statute miles.

## GEOLOGICAL REPORT.

### CHAPTER XVI.

#### SURFACE GEOLOGY OF A PART OF THE VALLEY OF LAKE WINNIPEG.

Abraded, Polished, and Grooved Rocks on Baril Portage—Sturgeon Lake—On the Winnipeg—Lakes Manitobah and Winnipegosis—Polished Pavement on South Branch—Erratics on the Qu'Appelle, at the Moose Woods, on Cut-Arm Creek, Assiniboine, West of Mississippi, on Souris—Beaches between Lakes Superior and Winnipeg—Great Dog Portage—Character of—Sand Bank—Section of—Dr. Hitchcock's views—Beach at Prairie Portage—Portage de Millieu—The Big Ridge on Red River—On the Assiniboine—Near Dauphin Lake—Pembina Mountain—Lines of Boulders—On South Branch—On St. Martin's and Manitobah Lake—Character of Pembina Mountain—Dr. Owen's description—At the Bad Woods—At the Grand Forks—Ridges on the Riding and Duck Mountains—Correspond with Ridges on the Great Dog Portage—Probable former connexion of Grand Coteau de Missouri, Turtle, Riding, Duck, Thunder, Porcupine, and Pasquia Mountains—Ancient River Valleys—The Qu'Appelle—The Little Souris—Sand Hills and Dunes—Their Distribution—Circular Depressions—Effects of Denudation—The Valley proper of Lake Winnipeg denuded—Outcrop of Formations—Conform to the general trend of the Laurentian Series.

The surface of the country between Lake Superior and the South Branch of the Saskatchewan exhibits the following phenomena at different localities:—

1. *Grooved, Scratched, Polished, and Abraded Rocks.*
2. *Erratics.*
3. *Ancient Sea and Lake Beaches and Terraces.*
4. *Ancient River Valleys.*
5. *Sand Hills and Dunes.*
6. *Circular Depressions.*
7. *Remarkable Effects of Denudation.*

#### 1. *Grooved, Scratched, Polished, and Abraded Rocks.*

Instances of the action of ice in abrading and polishing extensive surfaces of rock are very numerous on the canoe route from Lake Superior to Lake Winnipeg. The first wide expanse noticed on the west side of the watershed is at Baril Portage, 143 miles from Lake Superior, and 1,500 feet above the sea. Where Mille Lacs becomes narrow on approaching Baril Portage, gneissoid hills and islands about 100 feet high show a well defined stratification dipping north, at an angle of about 15°, and on that side smooth, and sometimes roughly polished; on the south side they are precipitous and abrupt. The same character was noticed at the Baril Portage. The north-eastern exposure of the rocks there was smooth, the southern rugged, and often precipitous.

On Sturgeon Lake, 208 miles from Lake Superior, and 1,156 feet above the sea, the north-eastern extremities of hill ranges slope to the water's edge, and when bare are always found to be evenly smoothed and ground down. The aspect of the south and south-western exposures is that of precipitous escarpments.

When on the Winnipeg in 1857, I ascended an abraded granite hill about 250 feet high, and obtained from its summit a very extensive view of the surrounding country. The broad river, with its numerous

\* The numbers refer to the Itinerary.



deep bays, was seen stretching far to the north, and all around smooth dome-shaped hills, similar to the one on which I stood, showed their bare and scantily wooded summits in every direction. The general surface was either bare, and so smooth and polished as to make walking dangerous, or else thickly covered with cariboo moss and tripe de roche.

This description applies to a vast area drained by the Winnipeg. In 1858 we frequently ascended the smoothed and polished rocks, on which glacial grooves were easily traced for long distances; sometimes, but not often, boulders were found resting upon the polished surfaces. On one occasion I attempted to ascend a round dome-shaped mound forming the summit of a granite hill, but its beautifully polished surface prevented me from obtaining a footing. The action of atmospheric agents had only succeeded in dimming its beauty, but had not destroyed its smoothness.

Grooves and scratches occur on the limestones of Lakes Winnipeg and Manitobah, where the surface has been preserved from atmospheric agencies, but whether they were of recent origin or connected with the drift, is not certain.

By far the most curious instance of modern ice action occurs in the valley of the South Branch, already described (see Chapter V.) The polished pavement on the edges of that river is a curious and instructive illustration of the manner in which boulders and ice may leave behind them lasting memorials, graven on stone, of their long-continued action, even on the banks of a river.

## 2. *Erratics.*

The distribution of boulders or erratics in the area explored may be traced, as in Canada, to at least two epochs: 1st. The Drift and Boulder period, during which by far the larger number were torn from the parent rock and carried by ice to their present resting places. 2nd. The recent period, including the re-arrangement of ancient boulders and the distribution of fresh supplies by the action of ice. Where erratics are distributed in unusual quantities, their position is marked on the large map. The largest boulder was seen in the valley of the Qu'Appelle; its position is shown on the "Track Survey of the Qu'Appelle." The circumference of this enormous erratic is 78 feet, and it exposes a portion above ground at least 14 feet in altitude. The next largest, one of limestone, was seen on the prairies below the Moose Woods; it is about 16 feet high, and at least 60 in circumference, is very jagged, and consists of immense slabs, whose edges project two and three feet. Near it are many others of the same kind, but of smaller dimensions. Near Little Cut-Arm Creek, an affluent of the Qu'Appelle, large unfossiliferous boulders are very numerous. One of gneiss measured 13 feet in diameter. North of the Assinniboiné, near the Big Ridge, large boulders are also abundant, and when magnified by refraction look like tents in the level prairies. Twice we were deceived by this appearance and led several miles from our course by their resemblance to a cluster of tents.

In speaking of the boulders in the Western Prairies, Dr. Owen says: "On the west side of the Mississippi, in the vast prairie region of Iowa, the attention of the geologist is frequently arrested by erratic blocks of enormous dimensions, scattered here and there, and half sunk in the ground. Unlike the boulders we have just been considering, they are far from their original situation. As they rise amid the ocean of grass they may be seen for miles; and in the absence of more conspicuous objects they form the principal landmarks of the traveller. The largest of them might, in an inhabited country, very well be mistaken for cabins in the distance. The one here represented was measured and found to be fifty feet in circumference, and twelve feet high. It is probable that at least one half of the rock is buried in the ground. Hence may be gathered some idea of its huge dimensions."\*

The drift on the Blue Hills of the Souris is of local origin, and consists almost exclusively of the shales which form the outcrop of the Cretaceous rocks whose limit is defined by the Pembina Mountain. Its age is consequently posterior to that of the true boulder drift, which is so generally distributed over the high prairies to the west.

In Lake Winnipeg, ice every year brings vast boulders and fragments of rock of the Laurentian series, which occupy its eastern shores. Many of these are distributed in the shallows and on the beaches of the western side; these phenomena resemble in miniature the stupendous operations described by Arctic travellers as continually occurring on the shores of the Arctic Ocean.

In Lake Manitobah long lines of boulders are accumulating in shallows and forming extensive reefs; the same operation is going on in all the lakes of this region, and is instrumental in diminishing the area of the lake in one direction, which is probably compensated by a wearing away of the coast in other places. Several of these modern accumulations formed by a re-arrangement of the boulders of the older drift are noticed in preceding chapters. Taken as a whole, and in connexion with the destruction of the coasts, they afford a striking illustration of the changes now taking place in the relations of land and water throughout the lake region.

## 3. *Beaches and Terraces.*

The most remarkable beach and terrace, showing an ancient coast line between Lake Superior and Lake Winnipeg, is undoubtedly that which separates Great Dog from Little Dog Lake on the Kaministiquia canoe route. I have thus described it in my report on the Red River Expedition of 1857.

The Great Dog Portage, 55 miles from Lake Superior by the canoe route, rises 490 feet above the level of the Little Dog Lake, and the greatest elevation of the ridge cannot be less than 500 feet above it. The difference between the levels of Little and Great Dog Lakes is 347.81 feet, and the length of the portage between them one mile and 53 chains.

The base of the Great Dog Mountain consists of a gneissoid rock supporting numerous boulders and fragments of the same material. A level plateau of clay then occurs for about a quarter of a mile, at an altitude of 283 feet above Little Dog Lake, from which rises, at a very acute angle, an immense bank or ridge of stratified sand, holding small water-worn pebbles. The bank of sand continues to the summit of the portage, or 185 feet above the clay plateau. The portage path does not pass over the

\* Owen's Geological Survey of Wisconsin, Iowa, and Minnesota, p. 144.

highest part of the sand ridge. East of the path it is probable that its summit is 500 feet above the Little Dog Lake.

Here, then, we have a terrace 472 feet above Little Dog Lake, or 835 feet above Lake Superior, or 1,435 feet above the sea.

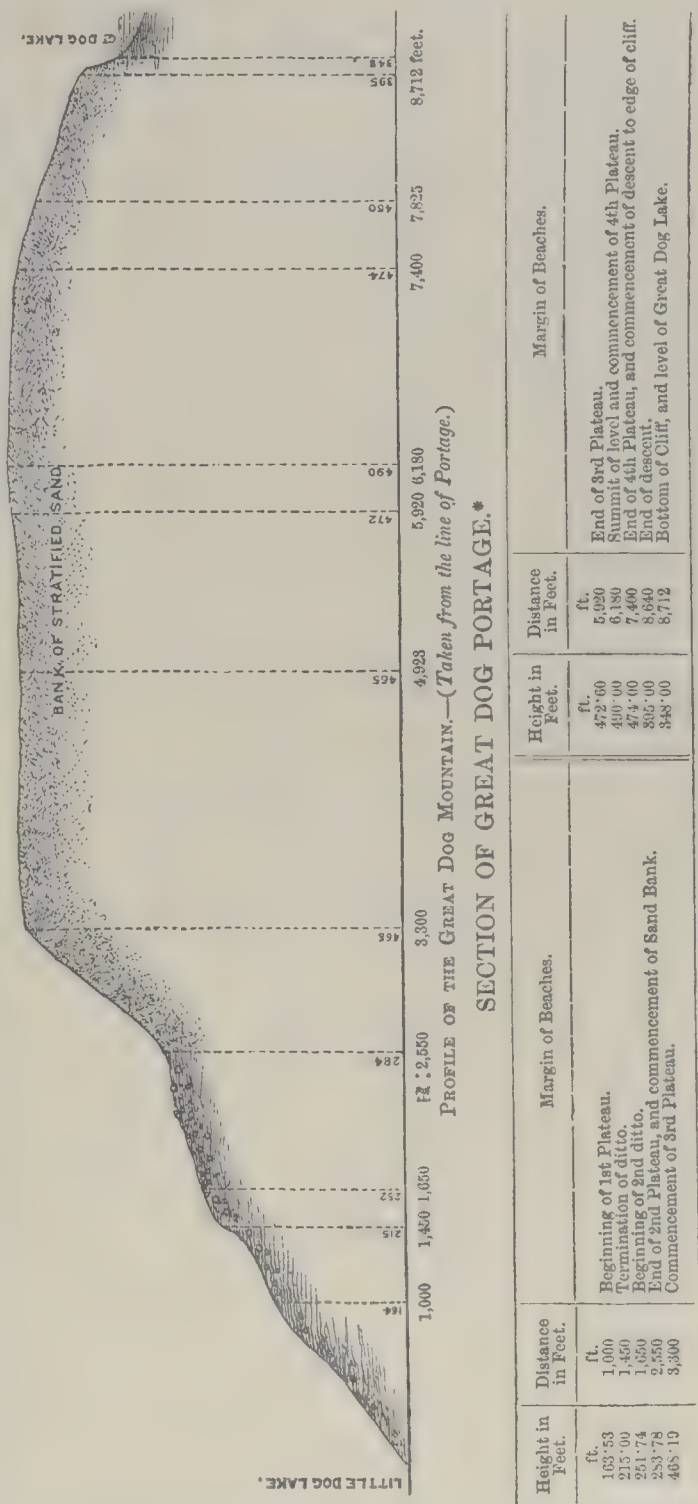
This ancient beach furnishes an admirable proof of Dr. Hitchcock's expectation that higher beaches than those measured by Sir William Logan on the shores of Lake Superior would be found in that region. Dr. Hitchcock says in his Surface Geology, page 63 (Smithsonian Contributions), "I will only add, that if it be admitted that the facts adduced in this paper prove the presence, since the Drift period, of the ocean at a height of 2,000 or even 1,200 feet above its present level, then it must have extended over nearly all of our western country; and unless Professor Agassiz says that he had his eye upon this matter along the shores of Lake Superior, I cannot avoid entertaining the expectation that what I call beaches will yet be found at a much higher level there than the 331 feet terrace measured by Mr. (now Sir William) Logan."

I am inclined to think that another beach and terrace can be recognized at Prairie Portage, 104 miles by the canoe route from Lake Superior; its altitude would correspond with that on the Great Dog Prairie Portage passes over the Height of Land, but not the highest land on the route, and its course lies first south-west up a steep wooded hill, without rock exposure, but composed of drift clays, sand, and numerous boulders; it then enters a narrow valley, which terminates in a small lake, about five acres in area and 20 feet deep, occupying a hollow among the hills on the Height of Land. The portage path continues on in the same direction until the Height of Land Lake is reached, a small sheet of water, about a square mile in area, and 157 feet above Cold Water Lake. The utmost elevation reached on the Prairie Portage is probably 190 feet above Cold Water Lake, or nearly 900 feet above Lake Superior. Portage du Milieu, 105 miles from Lake Superior, passes over a low sandy ridge. It is 869 feet above Lake Superior, or 1,469 feet above the sea.

In the valley of Lake Winnipeg the first prominent beach is the Big Ridge. This has been partially described in my Report on the Red River Expedition of 1857. Last year I had an opportunity of tracing it for a very great distance near the shores of Lake Manitobah.

Commencing east of Red River, a few miles from Lake Winnipeg, this ridge pursues a south-westerly course until it approaches Red River, within four miles of the Middle Settlement; here it was ascertained by levelling to be 67½ ft. above the prairie; on the opposite side of the river, a beach on Stony Mountain corresponds with the Big Ridge, and beyond that curious island in the prairie it is observed forming the limit of a former extension of the valley of Lake Winnipeg. On the east side of Red River the Big Ridge is traced nearly due south from the Middle Settlement to where it crosses the Roseau, 46 miles from the mouth of that stream, and on or near the 49th parallel. It is next met with at Pine Creek, in the State of Minnesota, and from this point it may be said to form a continuous level gravel road, beautifully arched, and about 100 feet broad, the whole distance to the shores of Lake Winnipeg, more than 120 miles.

On the west side of Red River, north of the 49th parallel, and north of the Assiniboine, we followed the Big Ridge from a point about three miles west of Stony Mountain to near Prairie Portage. Here it appears to have been removed by the agency of the Prairie Portage River and the waters of the Assiniboine, which during very high floods pass from the valley of that river into Lake Manitobah.



\* This Section was kindly furnished me by Mr. Napier, Engineer to the Red River Exploring Expedition of 1857.



It, or one of a few feet higher elevation, was again observed on White Mud River, about 20 miles west of Lake Manitobah. Here it resembled in every particular the ridge on the east side of Red River, being about 100 to 120 feet broad, and 25 feet above the level of the prairie. It was again noticed in the rear of Manitobah House, where the same characteristics were preserved. It probably crosses the Assinniboine three or four miles west of Prairie Portage. The general contour of this ridge is shown on the map.

In the rear of Dauphin Lake the next ridge in the ascending series occurs; it forms an excellent pitching track for Indians on the east flank of the Riding Mountain. Probably these ridges are found close together at the foot of the Pembina Mountain, where no less than four distinct steps occur, as shown on the map. The summit of these steps may be the plateau whose altitude was ascertained by Dr. Owen to be 210 feet above the prairie level, and the first and second steps may be a part of the Big Ridge, limiting the lowest level prairies of Red River and the Assinniboine.

The lower prairies enclosed by the Big Ridge are everywhere intersected by small subordinate ridges, which often die out, and are evidently the remains of shoals formed in the shallow bed of Lake Winnipeg when its waters were limited by the Big Ridge. Many opportunities for observing the present formation of similar shoals occurred in Lake Manitobah, St. Martin's Lake, Lake Winnipeg, and Dauphin Lake. These, when the lakes become drained, will have the form of ridges in the level country then exposed. Indeed, it may be said that the region between Dauphin Mountain and Lake Manitobah, in the direction of Ebb and Flow Lake, and south of that body of water, is but recently drained, or still in process of draining, being removed from the surface of Ebb and Flow Lake by a very few feet, and covered with water to a large extent in the spring. At present it consists of marsh, bog, and ridge in continued succession. When completely drained, the country will resemble the present prairies of the Assinniboine, with the gentle rich depressions, and the low, dry, gravelly ridges.

The long lines of boulders exposed in two parallel, horizontal rows, about 20 feet apart, in the drift of the South Branch, are the records of former shallow lakes or seas in that region. They may represent a coast line, but more probably low ridges formed under water, upon which the boulders were stranded. In Lake Manitobah and St. Martin's Lake, modern instances, now in process of arrangement, are visible for many miles in length. In these shallow lakes the boulders brought year by year by ice from the neighbouring shore accumulate upon long, narrow spits, and ultimately form breakwaters or islands. The same process may have occurred with the boulders on the South Branch. The fine layers of stratified mud, easily split into thin leaves, which lie just above them, show conclusively that they were deposited in quiet water; their horizontality proves that they occupied an ancient coast or ridge below the comparatively tranquil water of a lake of limited extent. The vast accumulations of sand and clay above them establish the antiquity of the arrangement, and the occurrence of two such layers parallel to one another, and separated by a considerable accumulation of clay and sand, leads to the inference that the conditions which established the existence of one layer also prevailed during the arrangement of the other. It may be that these are boulders distributed over the level floor of a former lake or sea, and they may cover a vast area; if so, it only proves that the agents which brought them operated a second time after a long interval, and with similar results.

The Pembina Mountain is *par excellence* the ancient beach in the valley of Lake Winnipeg. Dr. Owen described it as it occurs a few miles south of the 49th parallel: "After a hot and fatiguing ride over the plains, we arrived an hour after sunset at the foot of the Pembina Mountain. In the twilight, as we stood at our encampment on the plain, it looked as if it might be 300 feet or more in height; but in the morning, by broad daylight, it seemed less. When I came to measure it, I was somewhat surprised that it did not exceed 210 feet. I observed on this as on many other occasions that a hill rising out of a level plain appears higher than it really is, especially when, as in this case, the trees on its flank and summit are of small growth. Pembina Mountain is, in fact, no mountain at all, nor yet a hill. It is a terrace of table-land, the ancient shore of a great body of water, that once filled the whole of the Red River valley. On its summit it is quite level, and extends so far about five miles westward to another terrace, the summit of which I was told is level with the great Buffalo Plains that stretch away toward the Missouri, the hunting grounds of the Sioux and the half-breed population of Red River.

"Instead of being composed of ledges of rock, as I was led to suppose, it is a mass of incoherent sand, gravel, and shingle, so entirely destitute of cement, that with the hand alone a hole several feet deep may be excavated in a few minutes. The Pembina River has cut through this material a deep, narrow valley but little elevated above the adjacent plain. Along its banks are precipices of sand, surmounted by gravel and a few boulders. I was told that it was impossible to ascend these banks. So loose is the deposit, that, no sooner is an ascent attempted, than the stones 50 or 100 feet above, are detached, and come tumbling down at such an alarming rate that the climber is glad to make his escape."\*

An inspection of the map will show the contour of the Pembina Mountain as far as ascertained. It will be observed that where Mr. Dickenson ascended it, 15 miles north of the 49th parallel, it occurs in four distinct terraces. It crosses the Assinniboine near the Bad Woods, blends with the Riding and Duck Mountains, and probably appears again on the Main Saskatchewan, 22 miles from the Grand Forks. The elevation of the entire country east of this long ancient coast line is about 700 feet above the level of the ocean, and it forms the boundary of a distinct tract of lowland, in part surpassingly rich, as over the Red River and Assinniboine prairies, and the region on the Main Saskatchewan slightly elevated above the area subjected to annual overflow; part covered with swamp, marsh, or level limestone rock, on which a few inches of soil affords nourishment to small spruce, tamarac, and aspen; and finally, by a shallow water area extending over 13,100 square miles, and embracing lakes which rank with the first class in point of superficies on this continent.

High above the Pembina Mountain the steps and plateaux of the Riding and Duck Mountains arise in well-defined succession. On the southern and south-western slopes of these ranges the terraces are distinctly defined, on the north-east and north sides the Riding and Duck Mountains present a preci-

\* Page 179. Geological Survey of Iowa, Wisconsin, and Minnesota.



pitous escarpment which is elevated fully 1,000 feet above Lake Winnipeg, or more than 1,600 feet above the sea.

Standing on the edge of the escarpment of the Riding Mountain and looking in the direction of Dauphin Lake, a gulf some 250 feet deep is succeeded by two ranges, one lower than the other, of cone-shaped hills covered with boulders. The hills are parallel to the general trend of the escarpment; sometimes they are lost on the plateaux on which they rest. In other places they stand out as bold eminences, showing the extent of the denudation which gave rise to them. These ranges of conical hills correspond with terraces on the west side of the mountain. They are the result of the same denuding forces which have left their impress upon the west flank, and were formed by the unequal wearing away of the east flank, at the time when the terraces on the opposite side were in process of arrangement.

I estimated the summit of Bear Hill, one of the most prominent of the conical hills separated from the edge of the escarpment by a deep valley, at 800 feet above Lake Winnipeg; if to this altitude we add 628 feet, the height of Lake Winnipeg above the sea, the elevation of the first terrace below the summit of the mountain will be about 1,428 feet. This altitude corresponds in a remarkable manner with the sand bank on the Great Dog Portage, which has been found to have an elevation of 1,438 feet above the Ocean. Great Dog Portage is 500 miles distant in an air line from Bear Hill, on the Riding Mountain. The second tier of conical hills stands upon the second plateaux from the summit, and very probably corresponds with the Pembina Mountain; the altitude of the summit of Pembina Mountain above the sea is about 950 feet, and that of the second plateau, according to our estimate, nearly the same.

The denudation which has taken place in the valley of Lake Winnipeg is enormous. Five hundred feet above Dauphin Lake the Cretaceous shales crop out on the north-eastern flank; their position is nearly horizontal, and their thickness very great; they must have extended very far to the north-east, probably to the north shore of Lake Winnipeg, covering the horizontal limestones which occur at the Dog's Head and elsewhere on the western coast of that lake. It is not unlikely that future observations will establish a former connexion between the Grand Coteau de Missouri, the Turtle, Riding, Duck, Thunder, Porcupine, and Pasquia Mountains. It seems to me that they were formerly all part of one grand table land consisting of Cretaceous and Tertiary formations, which have been subjected to enormous denudation, and covered to a large extent with drift clays and sands, and with boulders of the unfossiliferous rocks.

#### 4. *Ancient River Valleys.*

These records of former water-courses have been noticed in a preceding chapter (XV.). Next to the valley of the Qu'Appelle, the old course of the Little Souris through the depression now occupied by the Back-fat Lakes is the most curious and imposing. Standing upon one of the most prominent of the Blue Hills of the Souris, near their southern extremity, the ancient valley can be traced as far as the first lake, which is distinctly seen by the unassisted eye, and with a good marine telescope its outline is plainly visible. Back-fat Creek flows with a sluggish current to join the Souris from these lakes in a westerly direction, while an arm of the Pembina River issues from their eastern extremity and flows into Red River. The Little Souris here pursues a course at right angles to its former valley, and has excavated a channel from 300 to 400 feet deep through the loose drift of the Blue Hills, and the Cretaceous rocks which underlie it.

#### 5. *Sand Hills and Dunes.*

The most extensive of these unstable ranges are shown on the large map, and the position of those of smaller dimensions is indicated by a note.

It is needless to remark that the region they occupy is almost absolutely barren. Many of the hills and dunes are continually exposing fresh surfaces, sometimes beautifully ripple marked. The probability of their being the remains of Tertiary deposits is noticed in a subsequent chapter. The following are the most extensive ranges:—

1. Sand hills and dunes of the Assiniboine, extending from the Bad Woods to a short distance beyond Pine Creek, 40 miles.
2. Sand hills of the Souris.
3. Sand hills and dunes of the Qu'Appelle.
4. Sand hills and dunes of the South Branch.
5. Sand and gravel ridges north of the Touchwood Hills.

#### 6. *Circular Depressions.*

This curious disposition of the drift, probably due to a re-arrangement of its materials, is of not uncommon occurrence south-east of the Touchwood Hills. Circular depressions, varying from 100 yards to half a mile in diameter, appear in the prairies, generally surrounded by a ridge of sand or gravel. Many of them are quite dry, others hold water, often but not always brackish. The deepest and largest depression noticed was about 600 yards across and 40 feet below the general level.

#### 7. *Effects of Denudation.*

An adequate conception of the effects of denudation in the valley of Lake Winnipeg can be best attained if we revert to the period when the Cretaceous shales now forming the flanks of the Turtle, Riding, Duck, Porcupine, and Pasquia Mountains, resting probably upon Devonian rocks, occupied the basins of Lakes Manitobah and Winnipeg, and found their eastern limits near the present outcrop of the Laurentian series. In order to complete our view of the extent of this great physical movement, we must conceive the same shales and sandstones in part overlaid by Tertiaries, filling the depressions or valleys in the Cretaceous rocks (the result of denudation), and forming with that elevated tract an extensive, wide-spread table-land. These relations become more evident upon an inspection of the sections. The great gulf, nearly 1,000 feet deep, between the summit of the Duck and Riding Mountains and the Laurentides has been in great part excavated by denuding forces during and since the Tertiary period.



In the section and on the map the Thunder, Porcupine, and Pasquia Mountains are represented as being capped by Cretaceous rocks, but it is not improbable from the circumstance that lignite has been found in the drift of the valley of Swan River, and that Indians who hunt in this region speak confidently of the occurrence of lignite near the summit of Thunder and Porcupine Mountains, that patches of Tertiary formations which have escaped denudation may still exist there. Thus much appears certain, that the denudation of the valley of Lake Winnipeg belongs part to the Tertiary and part to the Post-Tertiary epochs. The great valleys leading to the Post-Tertiary sea, which was the main agent in effecting the denudation, were excavated posterior to the boulder drift period. These are the Main Saskatchewan, Red Deer River, Swan River, Valley River, and the Assiniboine, all of which cut the Cretaceous shales at right angles to the denuded face of the series of escarpments which these rocks in great part form.

The outcrops of the different formations, as far as they are known, follow the general direction of the rim of the basin of unfossiliferous rocks in which they are deposited with remarkable uniformity. Conforming to the direction of the Laurentian system exposed on the east side of Lake Winnipeg, the Silurian series stretches from Pembina on the 49th parallel, to the Saskatchewan on the 54th, and thence towards the Arctic Sea.\* Following its outcrop the Devonian series is symmetrically developed between the same distant boundaries; but the most singular feature of this region is, that the soft Cretaceous shales should also conform with tolerable exactness to the exposed edges of the unfossiliferous rim of the great basin in which they lie. The occurrence of Cretaceous forms in the valley of the Mackenzie is a remarkable proof of the extension of this series in that direction. The present nucleus of the fossiliferous basin is occupied by the great lignite formation of the Tertiaries of the Grand Coteau de Missouri; and so symmetrical is this arrangement, that a line drawn through any part of the country from that part of the Grand Coteau de Missouri, which lies within British territory, to any point between Pembina and the Grand Forks of the Saskatchewan, would pass over proportionally extensive areas of the Tertiary, Cretaceous, Devonian, Silurian, and Laurentian series.

## CHAPTER XVII.

### THE LAURENTIAN SERIES.—THE SILURIAN SERIES.—THE DEVONIAN SERIES.

Distribution of Formations.—The Laurentian Series—The Laurentides—The Laurentian System described—Economic Materials in—Distribution of the Laurentian Series in the Basin of Lake Winnipeg.—The Silurian Series—The Chazy Formation—Deer Island—Grindstone Point—The Potsdam Sandstone—Probable Fossils in the Laurentian Series—Potsdam Sandstone on the South Shore of Lake Superior—The Bird's Eye Limestone—The Hudson River Group.—The Devonian Series Salt Springs—List of Salt Springs where Salt is gathered and manufactured—Mode of extracting Salt by Solar Evaporation—Formation superior to the Devonian—Western Limit of the Devonian Series—The Riding Mountain—Absence of Drift Proofs—Limit of Area in which Formations between the Devonian and Cretaceous may be found—Probable absence of the Carboniferous Series—The Nebraska Series—Kansas Rock—Permian Series—Jurassic or Triassic Series probable in Kansas—Cretaceous Rocks repose on Jurassic in Nebraska—Probability of the occurrence of the Coal Measures in the Basin of Lake Winnipeg.

### DISTRIBUTION OF FORMATIONS.

The distribution of series of formations in the order of their occurrence in the valley of Lake Winnipeg and the Saskatchewan is as follows:—

1. LAURENTIAN SERIES.
2. SILURIAN                    "
3. DEVONIAN                 "
4. CRETACEOUS             "
5. TERTIARY                "

### THE LAURENTIAN SERIES.

The whole eastern coast of Lake Winnipeg and the adjacent islands are Laurentian. Sir John Richardson, who voyaged along this shore in his journey to the Arctic Sea, remarks that "along the whole eastern shore the granite, gneiss, and trap rocks are everywhere exposed, the first-named rock being the most extensive; and nowhere do these masses rise to the altitude of hills."† The origin of the name Laurentian and the character of the rock series which compose this system is described by Sir William Logan and Mr. Hunt in the following extract from a "Sketch of the Geology of Canada."

#### *The Laurentides.‡*

"The province of Canada is traversed, through its whole length, by a mountainous region dividing it into two basins, which may be distinguished as the Northern and the Southern basins. These mountains which have been named the Laurentides, form the north shore of the St. Lawrence, from the Gulf as far as Cape Tourmente, near Quebec, from which point they leave the river, and while they follow its general direction become more and more remote, until, near Montreal, they are at a distance of 10 leagues from the St. Lawrence. Going further westward, this mountainous region follows the line of

\* See Mr. Isbister's Map,—Proceedings of the Royal Geological Society.

† Arctic Searching Expedition, page 360. Am. Ed.

‡ A Sketch of the Geology of Canada serving to explain the geological map and collection of Economic Materials sent to the Universal Exhibition at Paris, 1855, by W. E. Logan, F.R.S., and T. Sterry Hunt, A.M.

the Ottawa, and crosses this river near the *Lac des Chats*, 50 leagues from Montreal. Thence taking a southward direction, it reaches the St. Lawrence near the outlet of Lake Ontario, and from this point running north-westward, the southern limit of this formation reaches the south-eastern extremity of Lake Huron, at Matchedash Bay, and forms the eastern shore of the lake, as far as the 47th degree of latitude, where, quitting this lake, the formation gains Lake Superior, and extends in a north-west direction to the Arctic Sea.

"To the south of the St. Lawrence this same regions covers a considerable space between the Lakes Ontario and Champlain, and constitutes the Adirondack mountains. With this exception, and, perhaps, also a small exposure in Arkansas, and another near the sources of the Mississippi, this formation is not found to the south of the St. Lawrence, and as it belongs especially to the valley of this river, and constitutes the Laurentide Mountains, the Geological Commission of Canada has distinguished it by the name of the *Laurentian system*."

#### *The Laurentian System.*

"The rocks of this system are, almost without exception, ancient sedimentary strata, which have become highly crystalline. They have been very much disturbed and form ranges of hills, having a direction nearly north-east and south-west, rising to the height of 2,000 or 3,000 feet, and even higher. The rocks of this formation are the most ancient known on the American continent, and correspond probably to the oldest gneiss of Finland and Scandinavia and to some similar rocks in the north of Scotland.

"The rocks of the Laurentian formation are in great part crystalline schists, for the most part gneissoid or hornblendic. Associated with these schists are found large stratified masses of a crystalline rock, which is composed almost entirely of a lime and soda felspar. This rock is sometimes fine-grained, but more often porphyritic, and contains cleavable masses of felspar, sometimes several inches in diameter; these felspars are triclinic, and have ordinarily the composition of andesine, labradorite, anorthite, or of intermediate varieties. Their colours are various, but the cleavable felspars are generally bluish or reddish, and often give coloured reflections. Hypersthene is very generally disseminated in these felspathic rocks, but always in small quantity. Titanic iron ore is also found in them, in a great number of places, sometimes in small grains, but often in considerable masses.

"With schists and felspars are found strata of quartzite, associated with crystalline limestones, which occupy an important place in this formation. These limestones occur in beds of from a few feet to 300 feet in thickness, and often present a succession of thin beds intercalated with beds of gneiss or quartzite; these latter are sometimes quartzite conglomerates, and have in certain cases a base of dolomite. Associated with these limestones are sometimes found beds composed in great part of wollastonite and of pyroxene, species which evidently owe their origin to the metamorphism of silicious limestones. Beds of dolomite and limestone, more or less magnesian, are often interstratified with the pure limestones of this formation.

"The limestones of this system are rarely compact, and most frequently are coarsely granulated. They are white or reddish, bluish or greyish, and these colours are often arranged in bands which coincide with the stratification. The principal mineral species met with in these limestones are apatite, fluor, serpentine, phlogopite, scapolite, orthoclase, pyroxene, hornblende, wollastonite, quartz, idocrase, garnet, brown tourmaline, chondrodite, spinel, corundum, zircon, sphene, magnetic and specular iron, and graphite. The chondrodite and graphite are often arranged in bands parallel with the stratification. Beds of a mixture of wollastonite and pyroxene are sometimes met with, which are very rich in zircon, sphene, garnet, and idocrase. The most crystalline varieties of these limestones often exhale a very fœtid odour when bruised. The limestones of this formation do not yield everywhere well crystallized minerals; near the Bay of Quinté there are beds met with which still preserve the sedimentary character, and show only the commencement of metamorphism.

"The conditions in which they are sometimes found indicate that the agents which have rendered these limestones crystalline have been such as to render the carbonate of lime almost liquid, and that, while in that state, it has undergone great pressure. As evidence of this opinion, we find that the limestone often fills fissures in the adjacent silicious strata, and envelopes the detached and often folded fragments of these less fusible beds precisely like an igneous rock.

"The crystalline schists, felspars, quartzites, and felspars, which we have described, make up the stratified portion of the Laurentian system, but there are besides intrusive granites, syenites, and diorites, which form important masses; the granites are sometimes albitic, and often contain black tourmaline mica in large plates, zircon, and sulphuret of molybdenum.

"Among the economic minerals of this formation the ores of iron are the most important and are generally found associated with the limestones."

The Laurentian rocks which form the east coast of Lake Winnipeg strike off at its north-east corner, and, passing to the north of Moose Lake, go on to Beaver Lake.\*

The only exposure of Laurentian rocks seen within the area explored west of Lake Winnipeg were observed in St. Martin Lake; they have been described in Chapter IX., page 101.

#### THE SILURIAN SERIES.

Nearly the whole length of the western coast of Lake Winnipeg is composed of limestones, sandstones, and shales of Silurian age. From Big Black Island to the rapids on Red River the formations are concealed by quaternary deposits. On the south-east coast limestone is occasionally seen in position, but its junction with the Laurentian series near the mouth of the Winnipeg is concealed by drift.

The formations which have been recognized on Lake Winnipeg, and in the valley of Red River are—

1. The Chazy Formation.
2. The Bird's-eye „
3. The Trenton „
4. The Hudson River Group.

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\* Sir John Richardson's Journal of a Boat Voyage, &c., page 49. Am. Ed.



*Chazy Formation.*

The following section occurs on Deer Island, and for the sake of convenience this and other sections are introduced in the order of their occurrence.

No. 1. Four feet of dark green argillo-arenaceous shale, with thin layers of sandstone of uneven thickness—fucoids very abundant in the sandstone. The weathered sandstone is reddish brown; fresh surfaces are white or grey. White iron pyrites, assimilating the forms of disks, spheroids, and shells, occurs in the sandstone. A *Modiolopsis* is common in the shale.

No. 2. In many respects like the former; the sandstone layers are from one to four inches in thickness, and predominate over the shaly portions. Its thickness is six feet. The character of these formations (1 and 2) is very variable; the green argillaceous portion sometimes predominates, and occasionally the sandstone.

No. 3. Ten feet of sandstone with green bands of a soft argillaceous rock, from one quarter to four inches in thickness. The sandstone often white, but generally red. A persistent green band, a few inches thick, filled with obscure forms resembling fucoids, is very characteristic. The red coloured sandstone is often soft and friable, the white frequently embodied in the red. Both red and white contain obscure organic forms. The green patches which are found throughout the sandstone contain impressions of fucoids; an *Orthoceras* was found in the sandstone. In some parts of the exposure on Deer Island the sandstone layers are much harder, although partaking of the characters already described. When thus hard, the white portion is extremely brilliant, of a pure white, and very silicious; it would form an excellent material for the manufacture of glass. Forms coloured brown often pervade the white sandstone and appear to resemble fucoids and corals replaced by brown ochreous sand.

No. 4. Eighteen feet of limestone, perfectly horizontal, very hard, and breaking off the cliff where the soft sandstone has been weathered away in huge rhomboidal slabs, 8 to 25 feet in diameter, and 4 to 10 inches thick.

The surface of the limestone shows silicified shells and corals, among the shells an *Orthoceras* nine inches in diameter was seen, with others belonging to the genus *Rhynchonella*. (Page 96.)

The rocks at Grindstone Point, about six miles north of Deer Island, are similar to those described in the foregoing section. Being further north, the exposure is higher, and the sandstone bands more fully shown. Beneath No. 1 of Deer Island a hard, yellow, compact sandstone is exposed for a space of four feet above the level of the water. Strata No. 1 and No. 2 of Deer Island appear in a slightly different form here: the sandstone bands are thicker; the green shaly portion more distinct as a separate band, and two feet thick; while above the hard yellow sandstone, the base of No. 1 appears in the form of a purple band of very soft sandstone, about one foot in thickness, containing a vast number of *stains*, which seem to have been occasioned by fucoids.

The lithological character of the hard, yellow, compact sandstone beneath No. 1 of Deer Island, when compared with the sandstones, shales, and limestones which lie above it, suggests the idea that it may belong to the Potsdam sandstone formation. The occurrence of well known chazy forms in the superior strata remove all doubt as to their age; but further investigation might establish the existence of the formation which lies at the base of the fossiliferous rocks, as far as these are known, in this remote region.\*

The lithological character of the Potsdam sandstone on and near the south shore of Lake Superior resembles the soft and friable chazy sandstone of Lake Winnipeg in a very remarkable manner. It is not without interest that rocks belonging to formations possessing so close a vertical relationship should exhibit lithological characters almost identical in localities fully 600 miles apart. Neither will it be thought improbable that more extended investigations may establish a still closer connexion. Messrs. Foster and Whitney thus describe the Lake Superior sandstone in their Report on the Geology of the Lake Superior Land District:—

"The Potsdam sandstone of New York is a quartzose rock, whose particles are firmly aggregated, while the same rock, on the northern slope of Lake Michigan, is so slightly coherent that it may be crushed in the hand. The calciferous sandstone of New York, when traced west, passes into a magnesian limestone. Even in that State, according to Hall, groups which, at one extremity, are of great importance, and well characterized by fossils, cannot be identified at the other." (p. 114.) \* \* \* \*  
 "In descending the river (the Menomonee), it is first observed near the foot of the Chippewa Island. The subjacent rocks in this vicinity consist of talcose slates, in nearly vertical beds, intermingled with dark, compact, igneous rocks and crystalline greenstone. Their contour is very irregular, as though

\* Until lately the Potsdam sandstone has been supposed to represent the epoch when organic life was first introduced by the Creator on the surface of our globe. Recent discoveries tend to throw back the first peopling of the world into a past so indefinitely remote, that all preconceived ideas of the organic history of the world become unsettled and at fault. At the late meeting of the American Scientific Association, Sir William Logan exhibited a map illustrating the distribution of some of the bands of crystalline limestone interstratified with the gneiss of the Laurentian Series—the Azoic Series of some geologists. The following notice is from *The Canadian Naturalist and Geologist*, page 300:—

"Although the Laurentian Series has hitherto been considered azoic, a search for fossils in them has not been neglected. Such search is naturally conducted with great difficulties. Any organic remains which may have been entombed in these limestones would, if they retained their calcareous character, be almost certainly obliterated by crystallization, and it would be only through their replacement by a different mineral substance that there would be a chance of some of the forms being preserved. No such instances had been observed on the investigation of the Rouge and its vicinity, but from another locality in the Laurentian formation, Mr. John McMullen, one of the explorers of the Geological Survey, had obtained specimens well worthy of attention. They consisted of parallel or apparently concentric layers resembling those of the coral *Stromatocerium*, except that they anastomose at various parts; these layers consist of crystalline pyroxene, while the interstices are filled with crystallized carbonate of lime. These specimens had recalled to recollection others which had been obtained from Dr. Wilson, of Perth, some years ago, and had not then been regarded with sufficient attention. In these similar forms are composed of green serpentine, concretionary, while the interstices are filled with white dolomite. If it be supposed that both are the result of mere unaided mineral arrangement, it would seem strange that identical forms should result from such different minerals in places so far apart. If the specimens had been obtained from the altered rocks of the Lower Silurian series there would have been little hesitation in pronouncing them to be fossils. The resemblance of these forms to *Stromatocerium* from the Bird's-eye limestone, when the coral has been replaced by concretionary silica, is very striking. In the pyroxenic specimens, the pyroxene and the carbonate of lime being both white, the forms, although weathered into strong relief on the surface, are not perceptible in fresh fractures until the fragments are subjected to an acid, the application of which shows the structure running throughout the mass. Several specimens of these supposed fossils were exhibited to the section."



they had been abraded before the deposition of the arenaceous beds which occupy the inequalities in the surface of the more ancient rocks, in horizontal layers. The greatest inclination observed in the superior rocks was 3° to the south-east. *The sandstone consists of alternating bands of red and white, and is so friable, when first removed, that it may be crushed in the hand.* The grains are coarse and silicious, adhering together without any visible cement. After having parted with the water disseminated through the pores, it acquires a considerable degree of consistency, and is little acted on by the weather." (Page 132.) \* \* \* \* \*

"In the neighbourhood of Pleasant Valley, about 12 miles west of Strong's Landing, on the Fox River, it is exposed in several low escarpments, succeeded by the calciferous sandstone which here presents its usual characters. From this region its southern limit stretches to the west and north-west. The country here presents a feature which continues to the Mississippi River. The hills appear to be outliers, capped by the calciferous sandstone, or succeeding limestones, while the valleys and the lower part of the escarpments are composed of the Potsdam. The rock is fine-grained, of a light yellow colour, and very friable. Some of the superior beds, which are thin, have been wrought for grindstones. The friable character of this sandstone is one of its most prominent features, and, owing to this circumstance, the escarpments are not usually high, or abrupt, unless it has been protected by the overlying rock. In its want of cohesion it differs in a very marked degree from the prevailing character of this rock, as developed in New York and Canada, where it is usually, though not always, compact. It is not, however, unlike the sandstone of the Pictured Rocks, and is less friable than that of the Mississippi and St. Croix region. The almost uninterrupted continuity with which this rock can be traced, even from its eastern extension through Canada, and along the northern shore of Lake Huron to the St. Mary's River, and thence westerly, leaves no doubt as to its true position and identity in age with the Potsdam sandstone of New York. If we were at a loss in thus tracing it continuously, we have still the evidence of the succeeding fossiliferous strata, which show conclusively the same relations to this sandstone as they do to its equivalent in New York. With both these evidences combined, we cannot hesitate for a moment in our conclusion regarding its age and place in the series." (Page 133.)

Fine exposures of the chazy formation occur on Punk Island (see page 97) and along the west coast north of Big Grindstone part as far as the Cat Head. They appear in the form of cliffs, varying from 25 to 45 feet in altitude at nearly all points and promontories. The character of the rock is described in Chapter VII. At the narrows the three limestone promontories, the Bull's Head, Limestone Cave Point, and Whiteway's Point, approach within a few miles of the Laurentian series on the east coast. The strait from Whiteway's Point to the Dog's Head is not more than three miles across. Before this narrow channel was excavated, Lake Winnipeg must have been divided into two parts, like Lakes Manitobah and Winnipegosis, and it is not improbable that near the Dog's Head a rapid river or falls once existed. The relation of the two lakes would then resemble the present relation of Lake Manitobah, the Little Saskatchewan, and Lake Winnipeg.

#### *The Birdseye and Trenton Limestone.*

The whole of the coast on the north-west side of Lake Winnipeg is represented by Sir John Richardson to be occupied by the Birdseye Limestone. Near the First and Second Rocky Points the strata contain many gigantic orthoceratites, which have been described by Mr. Stokes in the Geological Transactions.\*

In Pine Island Lake there are exposures 30 feet in altitude, containing *Orthocerata* and *Receptaculites neptunii*.† The strike is south-west by west and north-east by east, being at right angles to the general direction of the Laurentides.

#### *The Hudson River Group.*

This formation appears in cliffs 25 feet high at the Stone Fort, Red River. It is also exposed near the rapids. Most of the forts and churches in the settlements are constructed of stone from this rock. The colour of its weathered surface is a pale yellowish gray, but of fresh surfaces a white gray.‡ Dr. Owen visited Red River Settlements in 1848,§ and described the fossils he found near the Stone Fort in his Report, published in 1852. Dr. Owen says:—

"About 20 miles below the mouth of the Assiniboine, near lower Fort Garry, solid ledges of limestone are exposed of a light buff colour, sometimes mottled, spotted, or banded with light brown. Immediately opposite the Fort a considerable amount of rock has been quarried, and used in the construction of the building. In these beds I succeeded in finding several well-defined and characteristic fossils, sufficient to establish, without the least doubt, the age of the Red River limestones.

"They are: *Favosites basaltica*; *Coscinopora sulcata*; hemispherical masses of *Syringopora*; *Chaetetes lycoperdon*; a *Conularia*; a small, beautiful, undetermined species of *Pleurorhynchus*; *Ormoceros Brongniarti*; *Pleurotomaria lenticularis* (?); *Leptana alternata*; *Leptana plano-conveza* (?); *Calymene senaria*; and several specimens of the shield of *Illænus crassicauda*.

"Many of these are identically the same fossils which occur in the lower part of F. 3, in Wisconsin and Iowa, in the blue limestones of Indiana, Ohio, Kentucky, and Tennessee, and also in the lower Silurian of Europe.

"The *Coscinopora* is precisely the same as the coral, which is particularly characteristic of the lower beds of the upper Magnesian limestone of Wisconsin. The specimens of *Favosites basaltica* cannot be distinguished from those which abound in the upper Magnesian limestones of Wisconsin and Iowa, and the lower Coralline beds of the Falls of the Ohio. It is also worthy of note that these limestones of Red River, like their equivalent in Iowa and Wisconsin, are highly magnesian, containing from 17 to 40 per cent. of the carbonate of that alkaline earth.

"Beyond the settlements of Red River, no opportunity is afforded on that stream for making further observations on the rock formations of the country.

\* Journal of a Boat Voyage through Rupert's Land, p. 49, Am. Ed.

† *Ibid.*, page 54.

‡ See Red River Report, page 294.

§ Geological Report on Wisconsin, Iowa, and Minnesota, page 181.



"A mile or two below the Cree village the river enters a tract of low land, and then meanders for more than 20 miles through a morass, before it finally disembogues into Lake Winnipeg.

"On the south shore of that lake, however, I again had an opportunity of inspecting fossiliferous limestones *in situ*. At the two localities where I succeeded in obtaining a view of them, they were much disturbed, dipping either at a high angle, or standing vertically. On Poplar Point they are quite thin-bedded, and contain, besides small *Entrochites*, large varieties of *Endoceras*. In a small bay, near Big Swamp Point, the limestone is seen jutting out beneath heavy, loose masses of crystalline rocks, some of which weigh hundreds of tons. The surfaces of many of the limestone slabs at this locality are crowded with well-preserved specimens of the characteristic fossil *Leptaena alternata*."

#### THE DEVONIAN SERIES.

In consequence of the extreme flatness of the country, the junction of the Silurian and Devonian series has been only approximately determined, chiefly by the occurrence of the saline springs which distinguish the Devonian series in this region. In all cases where saline springs were seen issuing from rock in position, Devonian formations were recognized by characteristic fossils. Several of these localities have been described in Chapter XI.

In 1823 Mr. Keating\* noticed the salt springs in Minnesota State and Dacotah territory far south of the boundary line. Even at that early period in the history of the Settlements on Red River 500 dollars were cleared by one individual during one winter from the sale of the salt he had manufactured from springs near Pembina. The price of salt in the Settlement was then six dollars per barrel weighing 80 pounds. At a spring on Saline River, south of the boundary line, Major Long's party found the *Salicornia herbacea* growing very abundantly around it. "Mr. Schweinitz states, on the authority of Mr. Nuttall, that this is the only inland locality of this plant, besides the Onondaga salt springs in the State of New York."

In the valley of La Rivière Salé, salt springs are very numerous, and the ground in their vicinity is frequently covered with a thick incrustation. Many years since the half-breeds of the Settlement used to collect salt from this valley for domestic purposes. The names Saline Creeks and Salt Points on Red River, north of the 49th parallel, were given in consequence of springs strongly impregnated with salt occurring there, but south and west of Stony Mountain no rocks in position have been observed east of Pembina Mountain. The whole country is nearly horizontal, having a mean elevation of about 130 feet above Lake Winnipeg.

Subjoined is a table showing the localities, north of the 49th parallel, where salt springs occur, distinguishing between springs from which salt has been and has not been manufactured or collected as a crust on the surface of the ground:—

- |                                    |   |   |
|------------------------------------|---|---|
| 1. Salt Brook                      | - | - Red River.  |
| 2. Salt Point                      | - | - "   |
| 3. La Rivière Salé                 | - | - Collected from incrustations by the side of the springs. These incrustations are often two inches in thickness. |
| 4. Salt Point                      | - | - Winnipegosis Lake.  |
| 5. Turtle River                    | - | - Dauphin Lake—collected by Indians.  |
| 6. Crane River                     | - | - Manitobah Lake—collected by Indians.  |
| 7. Monkman's Salt Works.           | - | - Winnipegosis Lake—manufactured by John Monkman, Chapter X.  |
| 8. Swan River                      | - | - Manufactured for H. B. Co.  |
| 9. West Coast of Winnipegosis Lake | - | - in many places.   |
| 10. West Coast of Lake Manitobah   | - | - in many places.   |
| 12. The Pas Mountain.              | - | -   |

It has been already stated (Chapter X.) that the processes employed in the manufacture of salt in Rupert's Land are of the rudest description. By the employment of simple artifices the yield might be greatly increased, and its market value reduced to one fourth the price it brings at the Settlements. In the valley of La Rivière Salé, about 26 miles from Fort Garry, springs issue from the sides of the hills in positions very favourable for the employment of solar evaporation in shallow basins, which might be excavated at a lower level than the spring, and salt extracted without the employment of artificial heat; an immense advantage in a country where fuel is scarce and labour dear.

In the State of New York between 500,000 and 600,000 bushels of salt are now made annually by solar evaporation. Wooden vats are employed, with moveable roofs, so that the brine may be protected at the approach of unfavourable weather. The average daily supply of brine at these works during six months of the year is 2,000,000 gallons, and the cost per barrel of 300 lbs. is one dollar. Salt made by the boiling process weighs 56 pounds to the bushel, solar made salt 75 pounds. By the boiling process at Onondaga the cast-iron kettles, holding from 50 to 70 gallons each, are disposed in double rows above suitable furnaces technically called "blocks." Each block contains from 50 to 70 kettles, and manufactures during eight months of the year from 20,000 to 25,000 bushels of salt.

In 1800 the number of bushels of salt made at the Onondaga Salt Works was 50,000; in 1810, 450,000 bushels; in 1830, 1,435,446 bushels; in 1840, 2,622,305 bushels; in 1850, 4,268,919 bushels; and in 1857, 4,300,000 bushels.

The strength of the brine is measured by a "salometer," whose zero is distilled water, and maximum, represented by 100, is water saturated with common salt. The brines of Onondaga vary from 76° to 44°. Wells which do not furnish brine above 50° are not considered worth working.

The sea-water at Nantucket gives a bushel of salt to every 380 gallons; at the salt springs of Zanesville, Ohio, 95 gallons furnish the same quantity of salt, while the old wells of Onondaga yield

\* Major Long's Expedition to the Sources of St. Peter's River.

one bushel from 40 to 45 gallons, and the new wells at Syracuse the same quantity from 30 to 35 gallons of brine.\* The wells on Winnipegosis Lake yield one bushel of salt from 30 gallons of brine.

The value of the salt trade in the United States may be inferred from the following statistics:—

	Bushels.
In 1840 the quantity of foreign salt imported was	- 8,183,203
In 1850       "       "       "       "       "	- 11,224,185
In 1857       "       "       "       "       "	- 17,165,704

The value of the foreign salt consumed in 1857 amounted to nearly 2,000,000 dollars, and the value of foreign and domestic salt exported from the States during the same year was 230,000 dollars.

In Mr. Sterry Hunt's Report† for 1855 the excellent method pursued in France for the manufacture of salt from sea water is described at length, and many features of this process might be very profitably employed in Rupert's land.

The most eastern exposure of the Devonian series recognized by fossils of that age occurs on Thunder Island, St. Martin's Lake; the most westerly exposure is seen on Moss River, and it is between these two points that, as far as known, brine springs are most numerous. Barren areas surrounding brine springs are of frequent occurrence at the foot of the range of hills from the Riding Mountain to the Pas. In a country nearly horizontal, where the attitude of the rocks conforms to the general surface, it will be at all times very difficult to determine the precise line of junction between succeeding series, and fortunately in the present instance the brine springs which undoubtedly have their source in Devonian rocks afford an excellent guide in determining the outcrop and extent of the series.

As far as my observations enabled me to judge there is no difference in the general aspect of the country occupied by the Silurian and Devonian series in this region. The rock of either age almost everywhere approaches the surface and is covered with a few inches of vegetable mould. Where fires have occurred the soil is burned away and the bare surface exposed. Very few areas of drift were seen; the most imposing being some low hills on St. Martin's Lake. Denuding forces appear to have cut down the surface of the country to one nearly uniform level from the Riding Mountain ranges to the Laurentides. The upper extremity only of this excavated valley being covered many feet deep with quaternary deposits through which Red River, the Assiniboine, and White Mud River have cut their channels.

The western limits of the Devonian series are shown on the map to follow the boundary of the Great Cretaceous table land so well defined by Pembina Mountain, Riding Mountain, Duck Mountain, Porcupine Hill, the Pas Mountain, and the high plateau similar to Pembina Mountain which stretches from the Pas to the Main Saskatchewan, near and below Fort à la Corne. The country as the base of this continuous boundary is uniformly horizontal, and while Devonian rocks in position were seen within 30 miles, and brine springs within 10 miles of Cretaceous shales on the precipitous flanks of the Riding Hill range, yet no evidence of any intermediate formation was visible.

During the ascent of the Riding Mountain a very careful search was made for traces in the drift of the higher series, in the hope of obtaining evidence of the existence of Carboniferous rocks, but without success. The boulders so numerous on the ridges and the successive terraces were carefully examined, but they were found to be derived altogether from the Laurentian series, or the limestone of Lake Winnipeg, or the superior Cretaceous shales.

The presence of fragments of any particular rock in the drift of Canada affords presumptive evidence of the existence of the parent rock in position some distance to the north of the place where the detritus is found.

If rocks occupying a position between the Devonian and Cretaceous series exist on the flanks of the Riding Mountain, it is probable that traces would have been discovered in the drift. The space in which members of the Carboniferous series or superior formations might occur is narrowed down to a strip 10 miles in breadth between the salt springs south of Dauphin Lake and the outcrop of the Cretaceous shales on the flanks of the Mountain. (See Chapter X. for a description of the ascent of the Riding Mountain.) At least seven miles of this distance is so nearly horizontal that it does not rise 20 feet above Dauphin Lake, and the dip of the Devonian strata is uniformly at a very small angle to the south-west, where exposures were seen on Manitobah Lake. (Small local deviations from a uniform dip on Snake Island and Moss River are noticed in Chapter X. and XI.) The Cretaceous shales were found exposed on the flanks of the mountain, about 400 feet above Dauphin Lake, and the rise from the level country at the foot of the mountain to that altitude is embraced within two and a half or three miles; yet within this narrow limit the drift on the slopes between each terrace, on the terraces themselves, or in the bottom of gullies excavated by mountain streams, gave no evidence of other rocks than those already named. It must be admitted that the time I could devote to an examination of the boulders was short, and a more minute search might give other results.

With this negative evidence in view, it appears tolerably certain that the Carboniferous series is not represented in the only locality where it may be looked for with much chance of success. Nevertheless, between the Devonian and Cretaceous series in the basin of Lake Winnipeg there is still a vertical section fully 400 feet in altitude, which is concealed by drift on the flanks of the Riding Mountain, covering a horizontal area two and half to three miles broad. It is possible that within this narrow limit, or further to the north where the area may be broader, rocks of Carboniferous, Permian, Triassic, or Jurassic age, may be yet found. With a view to show the relation which the Cretaceous and Carboniferous series have to one another in lower latitudes, the following brief notice of their occurrence in Nebraska and Kansas is introduced.

In Nebraska the Carboniferous series, or the coal measures, are exposed at the mouth of the Platte,‡ and extend up the river about 50 miles, when they dip beneath the water level of the Missouri. They

\* The History, Commerce, Sources, Manufacture, and economical Value of Salt consumed in and exported from the United States; by William C. Dennis, of Key West, Florida.—Patent Office Report, 1857.

† Report for the year 1855 of T. Sterry Hunt, Esq., Chemist and Mineralogist to the Geological Survey, addressed to Sir William Edmond Logan, F.R.S., Director of the Geological Survey of Canada.

‡ Notes explanatory of a map and section illustrating the Geological Structure of the country bordering on the Missouri River, &c. by F. V. Hayden, M.D.



are overlaid by No. 1 of the Nebraska section of the Cretaceous series in lat.  $41^{\circ}5'$ , lon.  $96^{\circ}$ . Cretaceous and Tertiary formations then occupy the valley of the Missouri as far as Fort Benton, lat.  $47^{\circ}54'$ , long.  $110^{\circ}$ , and extend into British America, as shown on the map which accompanies this report. Hence it appears that 10 degrees of latitude south of the Riding Mountain, the Cretaceous series repose on the Carboniferous without the intervention of Permian, Triassic, or Jurassic rocks.

In Kansas territory, on the Kansas and Smoky Hill Rivers, an elaborate section has been made by Messrs. F. B. Meek and F. V. Hayden,\* commencing with the Cretaceous sandstones on the summit of the Smoky Hills, lat.  $38^{\circ}30'$  N., long.  $98^{\circ}$  W., and descending through the various intermediate formations seen along the Smoky Hill and Kansas Rivers to the mouth of the Big Blue River on the Kansas. This section, over 1,000 feet vertically, passes from the Cretaceous to the upper coal measures, and includes rocks of Permian age. Messrs. Meek and Hayden remark, in relation to this section, "It will be observed we have in this general section, without attempting to draw lines between the systems or great primary divisions, presented in regular succession the various beds with the fossils found in each, from the Cretaceous sandstone on the summits of the Smoky Hills, down through several hundred feet of intermediate doubtful strata, so as to include the beds containing Permian types of fossils, and a considerable thickness of rocks, in which we find great numbers of upper coal measures forms. We have preferred to give the section in this form, because, in the first place, the upper coal measures of this region pass by such imperceptible gradations into the Permian above, that it is very difficult to determine, with our present information, at what particular horizon we should draw the line between them, while on the other hand it is equally difficult to define the limits between the Permian and beds above, in which we found no fossils."†

Jurassic or Triassic formations may occur above the Permian in the section just referred to. Messrs. Meek and Hayden state that "between No. 5 (of the section) and the Cretaceous above, there is still a rather extensive series of beds in which we found no organic remains; these may be Jurassic or Triassic, or both, though, as we have elsewhere suggested, we rather incline to the opinion that they may prove to belong to the former."‡

Formation No. 1 of the Nebraska series of the Cretaceous rocks has not yet been recognized in Rupert's Land. This formation reposes on Jurassic rocks in Nebraska territory at the Black Hills.§ It rests, as before stated, upon the limestones of the coal measures on the Missouri, near the 42nd parallel.

"There is at the base of the Cretaceous system, at distantly separated localities in Nebraska, Kansas, Arkansas, Texas, New Mexico, Alabama, and New Jersey, if not indeed everywhere in North America where that system is well developed, (at any rate east of the Rocky Mountains,) a series of various coloured clays and sandstones, and beds of sand, often of great thickness, in which organic remains, excepting leaves of apparently dicotyledonous plants, fossil wood, and obscure casts of shells, are very rarely found, but which everywhere preserves a uniformity of lithological and other characters, pointing unmistakeably to a similarity of physical conditions during their deposition, over immense areas.

"Although the weight of evidence thus far favours the conclusion that this Lower series is of the age of the Lower Green Sand, or Neocomien, of the old world, we yet want *positive* evidence that portions of it may not be older than any part of the Cretaceous system."||

Judging, therefore, solely from the relation which the Cretaceous series bear to formations beneath them in their development through Rupert's Land, Nebraska, and Kansas, we might expect to find on the Riding Mountain in the vertical section (400 feet), concealed by drift, beneath formation No. 4 (see succeeding chapter), either formation No. 1, 2, and 3 of the Nebraska section, or members of the Jurassic and Permian, as well as the Carboniferous series.

The prospect of any member of the true coal measures being found on the flanks of the Riding, Duck, Porcupine, or Pas Mountains, becomes, in consequence of the ascertained existence of other series beneath the Cretaceous in the same geological basin, rather unfavourable, but is certainly far from being without hope.

It is very gratifying to know that on the western side of the great basin between the Laurentides and the Rocky Mountains, within the limit of the Saskatchewan Valley, the Carboniferous series are represented. Sir Roderick Murchison, in his address at the anniversary meeting of the Royal Geographical Society, in referring to the splendid results of the Palliser Expedition, says, "Thus, in addition to the determination of latitude, longitude, and the altitude of the mountains, and two of their passes, Dr. Hector presents us with a sketch of the physical and geological structure of the chain, with its axis of slaty sub-crystalline rocks, overlaid by limestones of Devonian and Carboniferous age, and flanked on the eastern face by Carboniferous sandstone, representing, probably, our own coal fields, the whole followed by those Cretaceous and Tertiary deposits which constitute the subsoil of the vast and rich prairies watered by the North and South Saskatchewan, and their affluents."¶

\* Geological Explorations in Kansas territory by F. B. Meek and F. V. Hayden, published in the proceedings of the Academy of Natural Sciences at Philadelphia.

† Page 19, Geological Explorations in Kansas.

‡ Page 21, *ibid.*

§ On the lower Cretaceous beds of Kansas and Nebraska, by F. B. Meek and F. W. Hayden.—Proceedings Acad. Nat. Sci. Phil., Dec. 1858,—published in Am. Jour. Sci., page 219, 1859.

|| Remarks on the Tertiary and Cretaceous formations of Nebraska, &c., &c., by F. B. Meek and F. V. Hayden, M.D.

¶ Page 318, Proceedings of the Royal Geological Society, Vol. III., No. 4.

## CHAPTER XVIII.

## THE CRETACEOUS SERIES.—THE TERTIARY SERIES.

Great Extent of the Cretaceous Series in Rupert's Land—Cretaceous Series in the United States—Vertical Section in Nebraska Territory—Formation No. 1—Formation No. 2—Probable Distribution on the North Branch of the Saskatchewan—Formation No. 3—Formation No. 4—Distribution on the Little Souris—The Assiniboine—The Qu'Appelle—Formation No. 5—Distribution on the Qu'Appelle—The South Branch of the Saskatchewan—The Tertiary Series—Sand Dunes probably derived from Tertiary Rocks—Importance of—Lignite—Distribution in America—Distribution and importance of in Europe.

## THE CRETACEOUS SERIES.

By far the greater portion of the country explored in 1858 is underlaid by the different formations of the Cretaceous series. They were seen in position on the Little Souris in longitude  $100^{\circ} 30' W.$ , and on the South Branch in longitude  $106^{\circ} 35'$ . Between these widely separated points they were noticed in many places on the Assiniboine, the Qu'Appelle, and their affluents. This important series, as it occurs in Nebraska, has been carefully studied and admirably described by Messrs. Meek and Hayden. In the notes explanatory of a Map and Section illustrating the geological structure of the country bordering on the Missouri River, Dr. Hayden has described the rocks of Nebraska territory\*

\* The first reliable accounts we have of the general physical characters of the Upper Missouri country were given to the world in the report of Lewis and Clark's expedition to the Columbia in 1804–5–6. The exploration of these gentlemen, in addition to bringing out a large amount of information of a different character, established the fact of the occurrence of Cretaceous rocks at the Great Bend of the Missouri below Fort Pierre, and of the existence of what was supposed to be "stone coal" (Lignite) in the Mandan country. Various beds of clay, sand, sandstone, &c. were mentioned in their report, but without any suggestions respecting their age.

In 1832 the Prince of Wied and party also ascended the Missouri to its sources; and the result of his explorations, embodying a great amount of highly interesting information respecting the geography, natural history, &c. of the country explored, have been published in the form of a large quarto volume, accompanied by a magnificent folio atlas of plates, illustrating the scenery of the country, and the manners and customs of its native tribes, in a style of art rarely equalled on this side of the Atlantic. Respecting the geology of the country, however, the Prince's expedition added little of importance beyond the discovery of *Mosasaurus Missouriensis*, to the results of Lewis and Clark's Expedition.<sup>1</sup>

Mr. Nicollet, the well-known geographer, visited this country in 1839, ascending the Missouri to Fort Pierre, and making on his way up a fine collection of Cretaceous fossils at the Great Bend.<sup>2</sup> Although passing rapidly through the country, he formed a tolerably correct idea of its geology, and gave in his report a vertical section of the Cretaceous rock seen below Fort Pierre, which is correct, excepting that he seems to have had no knowledge of No. 2, and, as we think, without sufficient reason, represented two of his subdivisions of No. 3 as distinct formations; No. 1 he appears to have referred to the Carboniferous system. As he did not go above Fort Pierre, he probably saw nothing of No. 5, though some of its characteristic fossils were presented to him by gentlemen connected with the Fur Company.

In 1843 Mr. Edward Harris, who accompanied the celebrated Ornithologist Audubon to the mouth of Yellowstone River, brought back specimens from various localities along the Missouri River, some of which verified the statements of former explorers, while others gave evidence of the existence of a fresh-water formation near Fort Union.

At various times after this specimens of mammalian remains were brought in by gentlemen connected with the American Fur Company indicating the existence of an interesting Tertiary deposit on White River; the first account of which was published by Dr. H. A. Prout, of St. Louis, in the American Journal of Science, 1847.

In 1847 Dr. John Evans, one of Dr. Owen's assistants in the geological survey of the Chippeway Land District, was sent by that gentleman on an expedition to the Mauvais Terres of White River, and brought back a fine collection of mammalian and chelonian remains, which were investigated by Prof. Leidy, of Philadelphia. He also collected at the Great Bend, Sage Creek, and Fox Hills many interesting Cretaceous fossils, which were investigated by Dr. D. D. Owen, and published in his final report in 1852. Dr. Evans' observations, embracing a section of the Bad Lands, together with a description of their physical features, were also published in this report.

In the following year Mr. Thaddeus A. Culbertson visited the Upper Missouri country, under the auspices of the Smithsonian Institution, during which expedition he collected some interesting vertebrate remains from the White River formations. He also ascended the Missouri on the Fur Company's boat to a point above Fort Union, noting the character of the face of the country, and the occurrence of lignite beds at various localities.

In the spring of 1853 Dr. Evans again visited this country incidentally, while on his way to Oregon territory, in the geological survey of which he was engaged, under the patronage of the general government. During this expedition he made another extensive collection of vertebrate remains, and some fresh-water mollusca at the Bad Lands of White River, as well as some interesting Cretaceous fossils from Sage Creek. The mammalian remains of this expedition were studied by Prof. Leidy, and the other fossils by Dr. Evans and Dr. Shumard, and published in the Proceedings of the Acad. Nat. Sc. at Philadelphia, and the Acad. Sciences of St. Louis.

At the same time (1853) the writers of this paper were employed by Prof. Jas. Hall, of Albany, N. Y., to visit the Bad Lands of White River, for the purpose of making a collection of the Tertiary and Cretaceous fossils of that region. This expedition brought back an extensive and interesting collection of vertebrate remains from the Bad Lands, and of Cretaceous fossils from Sage Creek, as well as from Great Bend and other localities along the Missouri below Fort Pierre. The first were investigated by Prof. Leidy, and published in the Proceedings of the Acad. Nat. Sc. at Philadelphia; and the latter by Prof. Hall, and one of the writers,<sup>3</sup> and published in the Transactions Acad. Arts and Sciences, Boston.

In this latter paper a brief vertical section of the rocks seen during the expedition, and a complete list of all the mollusca then known from the Cretaceous and Tertiary rocks of that country, were given. The fact that the fossils characterizing the Cretaceous formations of Texas and New Mexico belong to different types from those occurring in the north-west, was also in this paper made known for the first time, in the following words:—"Among all the collections made in Texas by Dr. Roemer and others, and of all those brought by the Boundary Survey Expedition, and other surveying and exploring parties, which we have seen, there is but a single species which we regard as doubtfully identical with one from Nebraska. This is *Inoceramus Barabini*, Morton (I. Crisp, Mantell.) (?)"

A summary of the leading results of this expedition, throwing light upon the general geology of the country, its soil, scenery, &c., was likewise given to the public by Prof. Hall, in an interesting paper read before the American Association for the advancement of Science, at the Providence meeting.

Subsequent to all these expeditions, one of the writers<sup>4</sup> again visited Nebraska, and spent two years in traversing various portions of that country; part of which time he was aided by Col. A. J. Vaughan, Indian agent, and afterwards by Mr. Alexander Culbertson

<sup>1</sup> The Prince lost nearly all his geological specimens by the burning of the Fur Company's steamboat.

<sup>2</sup> These, together with others given to him at Fort Pierre, were investigated by Dr. Morton, and published in the Jour. Acad. Nat. Sc. Philada., Vol. VIII., p. 207.

<sup>3</sup> Mr. Meek.

<sup>4</sup> Dr. Hayden.



where the Cretaceous series is best developed, and as this division, styled the NEBRASKA SECTION, forms the standard to which the Cretaceous rocks of the north-west are referred, the following notice of the series is abbreviated from their explanatory notes and remarks.\*

The history on the preceding page, of the discoveries in Nebraska territory is contained in the introduction to Messrs. Meek and Hayden's "Remarks on the Tertiary and Cretaceous formations of Nebraska, and the parallelism of the latter with those of other portions of the United States and territories."

Subjoined is the vertical section of the geological formations of Nebraska territory, with their extension into Rupert's Land, as far as determined:—

VERTICAL SECTION of the GEOLOGICAL FORMATIONS of NEBRASKA TERRITORY, as far as determined, with their Extension into Rupert's Land.

SUBDIVISIONS.	LOCALITIES.	Estimated Thickness.	LOCALITIES IN RUPERT'S LAND.
<p>TERTIARY SYSTEM.</p> <p>MIocene.</p> <p>Light coloured indurated clays, with occasional beds of sandstone, conglomerate, and whitish limestone. Great numbers of <i>mammalian</i> and <i>chelonian</i> remains, with a few fresh-water and land shells.—(Bad Lands of White River.) Beds of clay, sand, sandstone, and lignite, containing great numbers of fresh-water and land <i>mollusca</i>, with a few marine or estuary shells; remains of plants, <i>Saurians</i>, <i>Trionyx</i>, &amp;c.—(Great Lignite Basin.) Sand, sandstone, clays, and very impure lignite, with remains of fresh-water, land, and a few estuary shells, <i>Saurians</i>, fishes, <i>Trionyx</i>, &amp;c.—(Bad Lands of Judith.)</p>	<p><i>Mauvaises Terres</i> of White River. Great extent of country on both sides of the Missouri between Heart and Milk Rivers; on the Yellow Stone. Bad Land at the mouth of Judith River, &amp;c.</p>	<p>About 900? feet.</p>	<p>Grand Côteau de Missouri.</p>
<p>CRETACEOUS SYSTEM.</p> <p>No. 5.</p> <p>Grey and yellowish arenaceous clays and sandstones, sometimes weathering to pink colour; containing <i>Belemnites bulbosa</i>, <i>Nautilus Dekayi</i>, <i>Ammonites placenta</i>, <i>A. lobatus</i>, <i>Scaphites Conradi</i>, <i>Baculites ovatus</i>, and great numbers of other marine mollusca.</p>	<p>Moreau trading post, and under the Tertiary of Sage and Bear Creeks. Fox Hills.</p>	<p>100 to 150 feet.</p>	<p>South Branch of the Saskatchewan—<i>Scaphites Conradi</i>, <i>Nautilus Dekayi</i>, <i>Avicula linguiformis</i>, <i>Avicula Nebrascana</i>.</p>
<p>No. 4.</p> <p>Bluish and dark grey plastic clays, containing <i>Nautilus Dekayi</i>, <i>Ammonites placenta</i>, <i>Baculites ovatus</i>, and <i>B. compressus</i>, with numerous other marine mollusca, remains of <i>Mosasaurus</i>.</p>	<p>Great area about Fort Pierre and along the Missouri below there. Under No. 5, at Sage and Bear Creeks. Great Bend of the Missouri. Near Milk and Muscle Shell Rivers.</p>	<p>350 feet</p>	<p>Little Souris River—containing <i>Anomia Flemingi</i>, <i>Inoceramus Canadensis</i>, <i>Leda Hindi</i>, Two Creeks, Assiniboine River, <i>Natica obliquata</i>, <i>Avellana concinna</i>; <i>Ammonites</i>—South Branch of the Saskatchewan—<i>Leda Evansi</i>, <i>Ammonites placenta</i>, <i>Scaphites nodosus</i>.</p>

and other gentlemen of the American Fur Company. During this expedition he explored the Missouri to the vicinity of Fort Benton and the Yellowstone to the mouth of Big Horn River. Also considerable portions of the Bad Lands of White River, and other districts not immediately bordering on the Missouri. The vertebrate remains collected by him, as may be seen by reference to the various papers by Prof. Leidy in the Proceedings of the Academy, embrace a larger number of species than all those previously known from that country, many of which belong to new and remarkable genera. Large collections of mollusca were also obtained from the Cretaceous and Tertiary formations, and have since been published by us, together with remarks on the general geology of the country, in a series of papers in the Proceedings of the Academy Nat. Sc. Phila., Vol. viii.

Again, in 1856, the same one of the writers returned to that country in connexion with a government expedition under the direction of Lieut. G. K. Warren. The new Cretaceous and Tertiary invertebrate remains, together with the new facts in regard to the geology of the country, collected by this expedition, form the basis of this paper.

Up to the publication of our first paper, about 56 new species of Cretaceous and Tertiary mollusca had been published from Nebraska, by Drs. Morjon, Owen, Evans, and Shumard, and by Prof. Hall, and one of the writers. Since that time, 16 additional new species have been published by Drs. Evans and Shumard, making in all 72 species hitherto published by others from that country. Our own investigations (including those here described) have made known 150 new species, and two new genera, many of the former of which also belong to types not hitherto recognized in this country. Of these 150 species, 54 (if we include the Judith River, fresh-water and estuary species) belong to the Tertiary system, and 96 to the Cretaceous. Fifty of the Tertiary species belong to fresh-water and land types, and four to genera inhabiting salt and brackish waters; being about four-fifths of all the land and fresh-water Tertiary species hitherto made known from American formations. The geological position, and vertical range of all our new species, and several of those published by others from the north-west, as well as a number of the well-known and widely distributed forms, such as *Scaphites Conradi*, *Ammonites lobatus*, *A. placenta*, *Nautilus Dekayi*, *Inoceramus problematicus*, *Mosasaurus Missouriensis*,<sup>1</sup> &c., have been determined with considerable accuracy, so that we have now the means of tracing out the parallelism between these deposits and their equivalents in other countries.

\* Notes explanatory of a Map and Section illustrating the geological structure of the country on the Missouri River from the mouth of the Platte River to Fort Benton, in lat. 47° 30' N., long. 110° 30' W., by F. V. Hayden, M.D., Proc. Acad. Nat. Sci. Phil., May 1857.

<sup>1</sup> In a section of the Nebraska formations accompanying the last paper communicated by us to the Academy, we gave as the position in which the remains of *Mosasaurus* occur in the north-west, the upper part of No. 5. This was in consequence of erroneous information in regard to the locality from which the specimens given to the Prince of Neu Wied were obtained. The locality (at the Great Bend of Missouri) has since been visited by one of us, and many specimens obtained; they occupy a horizon about the middle of No. 4 of the section.

SUBDIVISIONS.	LOCALITIES.	Estimated Thickness.	LOCALITIES IN RUPERTS' LAND.
CRETACEOUS SYSTEM—cont. No. 3. 20 FEET.—Dark, very fine unctuous clay, containing much carbonaceous matter, with veins and seams of selenite, sulphuret of iron, fish, and scales (local). 100 FEET.—Lead-grey calcareous marl, weathering above to a yellowish tint. Scales and other remains of fishes— <i>Ostrea congesta</i> —passing downwards into 30 FEET.—Light grey or yellowish limestone, containing great numbers of <i>Inoceramus problematicus</i> , fish scales, and <i>Ostrea congesta</i> .	Bluffs along the Missouri below the Great Bend. Extends to Big Sioux River, and occurs along the latter stream.	150 feet. New Jersey and Alabama.	North Branch of the Saskatchewan at the Coal Falls. (?) Sharks' teeth—Scales of Fish— <i>Inoceramus</i> .*
No. 2. Dark grey laminated clay; scales and other remains of fishes, small Ammonites, <i>Inoceramus problematicus</i> ? <i>Serpula</i> , small oyster-like <i>O. congesta</i> , &c.	Along the Missouri Bluffs, from 10 miles above James River to Big Sioux River.	90 feet wanting in.	Assinniboine—Scales of fish.† North Branch of the Saskatchewan at the Coal Falls. (?)
No. 1. Yellowish and reddish friable sandstone, with alternations of dark and whitish clays. Seams and beds of impure lignite, fossil wood, impressions of dicotyledonous leaves, <i>Solen</i> , <i>Pectunculus</i> , <i>Cyprina</i> , &c. This bed is not positively known to belong to the Cretaceous system.	Near the mouth of Big Sioux River, and between there and Council Bluffs. Near Judith River. (?)	90 to 100 feet or more.	Not recognized in area explored.
CARBONIFEROUS SYSTEM. Yellow limestone, containing <i>Fusulina cylindrica</i> , <i>Terebratula subtilita</i> , <i>Spirifer Meusebachianus</i> <i>Allorisma regularis</i> , and other fossils of the coal measures.	Forms shoals in the Missouri River at De Soto; 15 to 20 feet exposed at Council Bluffs, at low stages of the river.	Unknown.	Not recognized in area explored.

Formation No. 1 of Vertical Section.

The following excellent descriptions of the formations constituting the Nebraska Section are from the clear and concise "Notes Explanatory of a Map, &c.," by F. B. Meek and F. V. Hayden, M.D. They will serve as an admirable guide for the study of the development of the Cretaceous series in the part of Rupert's Land referred to in this Report.

"In the order of superposition, Formation No. 1 rests directly upon the true limestones of the coal measures. Its first exposure seen along the Missouri is at Wood's Bluffs, right bank, about 80 miles above the mouth of the Platte, and it dips beneath the water level of the Missouri a few miles below the mouth of the Vermillion. Its general character is a coarse-grained friable sandstone, very ferruginous, of a yellow or reddish-yellow colour, with thin beds of impure lignite and various coloured clays. It contains very few fossils, mostly of the genera *Solen*, *Cyprina*, and *Pectunculus*, also fossil wood, and numerous impressions of dicotyledonous leaves, similar to the common willow. Its entire thickness is estimated at 90 to 100 feet, but it may be more."

This formation has not yet been recognized in Rupert's Land. In Nebraska it reposes upon the upper members of the Carboniferous series near the mouth of the Platte (lat. 41° 40'), and it overlies Jurassic rocks at the Black Hills.‡

Formation No. 2 of Vertical Section.

"This formation is first revealed in thin outliers below the mouth of Big Sioux River, and on that stream six miles above its mouth it caps the Bluffs, apparently mingling to some extent with the succeeding bed, and containing at this locality large numbers of *Inoceramus problematicus* and fragments of fishes. Near the mouth of Iowa Creek and above it shows itself worthy of a separate position in the series. It is composed of a dark leaden gray laminated plastic clay, containing few fossils, but great quantities of the sulphate of lime in crystals, assuming a variety of beautiful forms. Its greatest thickness is seen five miles below the mouth of James River. At Dorion's Hills it is seen at low water mark. Entire thickness estimated at 90 feet. Fossils, *Ammonites*, *Inoceramus*, *Cytheria*, *Serpula*, *Ostrea*, and abundant fish remains."

This formation has been recognized on the Assinniboine.

On the North Branch of the Saskatchewan, a few miles above the Grand Forks, huge masses of a dark coloured, almost black shale, with sharp, well preserved edges, jut out of the banks, and are exposed whenever portions of the face of the clay cliffs fall into the river. Their appearance is such as to justify the expectation that rock in position from which they originated is close at hand. Some

\* Mr. Meek thinks the specimens may belong to either No. 2 or No. 3.

† Beds Nos. II. and III. as well as Nos. IV. and V. may in some localities merge into one another. See foot-note, page 130, of the Geology and Palæontology, Mexican Boundary Survey.

‡ Descriptions of the Species and Genera of Fossils collected by Dr. F. V. Hayden in Nebraska territory, under the direction of Lieut. C. K. Warren, U.S. Topographical Engineer, with some Remarks on the Tertiary and Cretaceous Formations of Nebraska, and the parallelism of the latter with those of other portions of the United States and Territories, by F. B. M., and F. V. Hayden, M.D.



specimens which I procured and sent to Mr. Meek contain, according to that gentleman, fish scales, shark's teeth, and *Inoceramus*, which renders it almost certain that the masses were detached from rocks belonging to formation 2 or 3 of the vertical section. I have therefore assigned in the foregoing table, the locality Coal Falls, North Branch of the Saskatchewan, with a note of interrogation, as the probable outcrop of one or both of these divisions of the Vertical Section.

*Formation No. 3 of Vertical Section.*

"The geographical distribution of this formation and its influence on the scenery render it one of the most interesting on the Missouri. It is first seen in thin outliers near the mouth of Big Sioux River, and becomes quite conspicuous on the summits of the Bluffs 10 miles above the Iowa Creek. At Dorion's Hills it reaches to the water's edge, and is the prevailing formation from thence to the foot of the Great Bend, where it passes by a gentle dip beneath the water level of the Missouri. At Dorion's Hills there is a fine section of this bed about 80 feet exposed above the water's edge, containing its most abundant and characteristic fossil, *Ostrea congesta*. In many places, as opposite the mouth of Running Water, it assumes the form of a long series of precipitous bluffs, giving a pleasing variety to the general monotony of the scenery. This is one of the principal characteristic external features of this formation.

"The upper portion of this rock is a yellowish and gray calcareous marl, very soft and yielding, so that it is easily cut up into numerous ravines by the temporary streams, and thus the bluffs along this part of the Missouri often present the appearance of a series of cones. The lower stratum, however, is more compact and forms a soft bluish gray limestone.

"Though so well developed and covering so wide an area, the middle and upper portions, at least, of this rock can never be made useful for building purposes. Quite soft and friable in places, when detached, it absorbs moisture rapidly and crumbles in pieces. Being a rich calcareous marl, it may be used at some future time as a fertilizer.

"The fossils of this formation, though belonging to few species, as far as is yet known, are numerous in individuals. A species of oyster (*O. congesta*) is found in great quantities throughout the bed, and in localities *Inoceramus problematicus* is abundant. Fish remains, though consisting mostly of scales and obscure fragments, are disseminated throughout the deposit, several species of which have already been identified and described by Dr. Leidy. Entire thickness of this bed about 150 feet.

"Near First Cedar Island a very singular bed makes its appearance superimposed on No. 3, which we shall consider as probably forming a local upper member of that formation. It extends up the Missouri River to a point near the Great Bend, a distance of about 80 miles. Lithologically it is a dull black, unctuous clay, destitute of any grit, and does not effervesce with an acid. It contains some carbonaceous matter and great quantities of selenite in crystals."

This formation, as stated above, probably occurs on the North Branch of the Saskatchewan, at the Coal Falls.

*Formation No. 4 of Vertical Section.*

"This formation is the most important one in the Cretaceous system of the north-west, not only in regard to its thickness and its geographical distribution, but also in its influence on the agricultural capabilities of the country. It is only second in interest to the succeeding bed in the number, beauty, and variety of its organic remains. Commencing about 10 miles above the mouth of James River, where it is seen only in thin outliers capping the distant hills or bluffs, it continues gradually assuming a greater thickness as we ascend the Missouri until reaching the Great Bend, where it monopolizes the whole region, giving to the country underlaid by it a most gloomy and sterile aspect. At the Great Bend it attains a thickness of 200 feet, and continues to occupy the country bordering on the Missouri, to the mouth of Grand River, where, in consequence of the dip of the strata, it passes gradually beneath the level of the river.

"After dipping beneath the water level between Grand and Cannon Ball Rivers, this formation again rises to the surface about 30 miles below the mouth of Milk River, (far up towards the sources of the Missouri,) by a reversed dip of the strata, from beneath the northern portion of the Great Lignite Basin, as will be seen by reference to the section on the map. Near the mouth of the Mussel Shell River it occupies the whole country for a distance of about 80 miles, and thins out upon the tops of the hills near the mouth of the Judith River.

"In summing up the extent of country underlaid by this great formation, we find that south of the Lignite Basin it occupies an area of 200 miles in length and 100 in breadth, or 20,000 square miles. North of the Great Lignite Basin, commencing at its first appearance near Milk River, we find it covering an area of 200 miles in length and 60 in breadth, or about 12,000 square miles. I have been thus particular in estimating its approximate limits and extent of surface on account of its influence on the future destiny of that region. Wherever this deposit prevails it renders the country more completely sterile than any other geological formation I have seen in the north-west. We see from the above estimate that it renders barren over 30,000 square miles of the valley of the Missouri.

"The fossils of this formation are too numerous to mention in detail. The upper and lower members appear to be exceedingly fossiliferous, while the intervening portions of considerable thickness contain only a few imperfect specimens of *Cephalopoda* and the bones of *Mosasaurus Missouriensis*. The entire thickness of this formation may be estimated at about 350 feet."

The formation is probably more extensively developed in Rupert's Land than any other member of the Cretaceous series.

The most easterly exposure, where it holds characteristic fossils, is on the Little Souris. Fifteen miles from the mouth of that river it consists of a very fissile, dark-blue argillaceous shale, holding numerous concretions containing a large per-centage of iron. Some very obscure fossils were found in it, with fragments of *Inoceramus Canadensis*.\* The shale weathers ash-white; and the exposure on the Little Souris is 70 feet thick in horizontal layers.

\* See Chapter XIX., by Mr. F. B. Meek.

Where the river has excavated a passage through the Blue Hills of the Souris, the rock frequently occurs in cliffs, the dip being  $3^{\circ}$  south. Fragments and perfect forms, but very fragile, of *Inoceramus Canadensis*, (Meek,) are very common. The ferruginous concretions are disposed in regular layers, and constitute a marked feature of the rocks of this valley.

A few miles west of the Blue Hills the dip of a very remarkable exposure of shale, with bands of ferruginous concretions, facing the south, was levelled with the utmost care, and found to be perfectly horizontal. At the base of the exposure, and on a level with the water's edge, a layer occurs full of gigantic *Inoceramus*, probably the same species as those before mentioned. One specimen measured  $8\frac{1}{2}$  inches in diameter, it was very fragile; but the peculiar prismatic structure of the shell was remarkably well preserved. On attempting to raise it, it separated into thousands of minute prisms.

A search for fossils here was more successful, and resulted in the discovery of several new species, which are named and described in Chapter XIX., by Mr. Meek. Among the fossils were *Anomia Flemingi*, (Meek,) N. sp.; *Inoceramus Canadensis*, (Meek,) N. sp.; *Leda Hindi*, (Meek,) N. sp.

On the Two Creeks, an affluent of the Assiniboine, the same formation exists. Among the fossil collected there were *Natica obliquata*, *Avellana concinna*, *Ammonites* (sp. undt), &c. &c.

On the Qu'Appelle River this rock is again seen below the Big Cut-Arm Creek, and also near the Scissors Creek. Although no organic forms were procured, yet the lithological aspect of the rock is the same as on the Little Souris. The same remark applies to the outcrop on the Riding Mountain.

An exposure, a few miles below the mouth of the "River that Turns," on the South Branch of the Saskatchewan, contains at its base a hard Calcareous sandstone, containing *Avicula linguiformis*, below it is a soft sandstone destitute of fossils. This section is described on page 71. It is not improbable that the strata above the second concretionary layer pass into Formation 5 of the Nebraska section, and represent the upper Cretaceous in this region.

#### Formation No. 5 of Vertical Section.

"This very interesting bed, though differing lithologically from the preceding one, contains many of the same species of fossils. It is worthy, however, of a distinct position in the series, not only from its extent, thickness, and difference of composition, but also from the more favourable influence that it exerts upon the country underlain by it. In ascending the Missouri River it first makes its appearance near the mouth of Grand River, about 150 miles above Fort Pierre. Near *Butte aux Grès* it becomes quite conspicuous, acquiring a thickness of 80 or 100 feet, and containing great quantities of organic remains. Here it forms an extension of what is called Fox Ridge, a series of high hills having a north-west and south-west course, crossing the Missouri River into Minnesota at this point. Its north-eastern limits I have not ascertained. In its south-western extension it continues for a considerable distance nearly parallel with the Missouri, crosses the Moreau River about 30 miles above its mouth, then forms a high dividing ridge between the Moreau and Sheyenne Rivers, at which locality it first took its name. Continuing thence its south-westerly course, it crosses the Sheyenne, and is seen again in its full thickness at the heads of Opening Creek and Teton River, forming a high ridge from which tributaries of the Sheyenne and Teton take their rise. The little streams flowing into the Sheyenne have a north-westerly course, while those emptying into the Teton take a south-easterly direction. We thus find that this bed underlies an area of about 200 miles in length and 50 miles in breadth, or about 10,000 square miles.

"The general character of Formation No. 5 is a yellow arenaceous and argillaceous grit, containing much ferruginous matter, and in localities a profusion of molluscan fossils. It forms a much more fertile soil, more hearty and luxuriant vegetation, sustains a finer growth of timber than Formation No. 4, and abounds in springs of good water.

"Like No. 4, this bed yields a great abundance of quite perfect and well-preserved organic remains. Many of the species approximate so closely to Tertiary forms, that did we not find them everywhere associated with *Ammonites*, *Scaphites*, and other genera which are not known to have existed later than the Cretaceous epoch, we should at once pronounce the formation in which they occur Tertiary. The whole thickness of this bed is estimated at 100 to 150 feet."

The first exposure of this formation is probably found on the Eyebrow Hill stream, where it joins the Qu'Appelle Valley. A ferruginous clay in yellow and red layers reposes on a hard greenish coloured sandstone, seamed with veins of selenite, and containing huge concretions. No fossils were found in the rock.

The upper part of the section on the South Branch containing concretions full of *Avicula Nebrascana* is doubtless the representation of No. 5 in this region. A description of this section is given on page 71, and of another, 50 miles from the Qu'Appelle on the South Branch on page 72. Among the specimens procured from the South Branch belonging to this formation were *Scaphites Conradi*, *Nautilus Dekayi*, *Avicula linguiformis*, *Avicula Nebrascana*, *Rostellaria Americana*.\*

#### THE TERTIARY SERIES.

No evidence of Tertiary rocks in position east of the South Branch of the Saskatchewan was obtained during the exploration. On an island in the prairie called the Wood Hills, referred to in Chapter II., lignite is reported to exist in position, and the fragments showed me by Charles Pratt were similar to those obtained from the boulder lignite on the Little Souris. On the crest and abrupt sides of the Riding, Porcupine, and Thunder Mountains the Indians affirm that beds of lignite exist, a statement rendered probable by the occurrence of worn fragments in the drift of the valleys of the rivers flowing from those eminences.

The sand dunes which form so distinguishing a feature near the Elbow of the South Branch may have been derived from Tertiary sandstones formerly overlying the upper Cretaceous rocks in that

\* See Chapter XIX., by Mr. Meek.



vicinity. West of the South Branch sand hills, quite bare, and certainly not less than 100 feet high, were seen at a considerable distance, and also numerous sand hills were observed south of the Qu'Appelle, east of the Elbow of the South Branch. In a footnote, on page 189, of the Geology and Palæontology of the Mexican Boundary Line, Prof. James Hall says that the drifting sands of the south-west, like those of the north, appear to be derived from the sandstones of the Tertiary period.

No rock was seen in position on the Eyebrow Hill range, although from the circumstance that upper Cretaceous rocks occur *in situ* in the Qu'Appelle Valley, five miles north-west and 300 feet below the summit of the ridge, there is little reason to doubt, that as on the Grand Coteau de Missouri, of which the Eyebrow Hill range is a northerly extension, Tertiary rocks in position do exist there.

Sand hills and dunes form an important physical feature in the surface geology of the part of Rupert's Land under consideration. In a former chapter a short notice is given of their distribution, and reference is here made to it in view of the probable relationship which may ultimately be established between sand dunes and hills and the remains of former Tertiaries. If future investigations should establish the origin of these sand dunes and hills, and show that they are the widely distributed remains of Tertiary rocks, the antiquity of the valley of the Qu'Appelle will be cleared of much doubt.

#### LIGNITE.

Although the lignites are not generally available for economic purposes, yet some seams sufficiently pure for use are known to exist in the great lignite basin of the Upper Missouri. A brief notice of the character of this important material as it occurs in the Tertiary rocks of the north-west will enable a tolerably accurate judgment to be formed of its probable value as a source of fuel in Rupert's Land.

The great lignite basin of the Missouri extends from the 100th to the 108th degree of west longitude, and from the 45th degree of north latitude to an undescribed limit, probably through the valley of the Saskatchewan to the valley of the Mackenzie.

Dr. Hayden, who traced the great Missouri formation up that river for a distance of 600 miles, and up the Yellowstone for 300 miles, considers that the fossils obtained from it show conclusively that it possesses the mixed character of a fresh water and estuary deposit, and that it cannot be older than the Miocene period. It is composed of clays, sands, sandstones, and lignites. The extent of country known to be occupied by this basin, as it occurs on the Missouri and its tributaries, exceeds 60,000 miles. The beds of lignite in this extensive formation vary in thickness as well as in purity at different localities. On the Yellowstone they are found seven feet in thickness. At Fort Berthold on the Missouri a two-foot bed is pure enough to be used as fuel.\*

Governor Stevens, in his Report of the Exploration of a route for the Pacific Railway, says that lignite has been traced from the Coulées of the Mouse River to the head waters of Milk River, a distance of 500 miles, *apparently* underlying the whole of that extensive district of country, with a thickness of bed varying from a few inches to six feet; he regards it as a source of fuel not to be overlooked.†

I do not enumerate the lignites described by Sir John Richardson and others as occurring at Edmonton and various places on the North and South Branches of the Saskatchewan, for the obvious reason that no doubt by this time a full and complete description of their value as a source of fuel on the North Branch has been already prepared by Dr. Hector, who would enjoy unusual facilities when at Edmonton for studying their development and economic value. On the South Branch they are said to exist, by Sir Alexander Mackenzie, in long. 116° W.; but as the country between the Elbow and the mouth of Bow River is still a *terra incognita*, it is not improbable that important lignite beds may be found much further east than the longitude specified by that illustrious traveller.‡

At Nanino, Vancouver's Island, lignite beds, long conjectured to be of Tertiary age, have been worked to some extent for the San Francisco market, and to supply steamers which touch there.§ The doubts which have existed respecting the age of the Vancouver coal have recently been set at rest by Mr. Bauerman, who, in a geological description of a part of Vancouver's Island transmitted to Sir Roderick Murchison, expresses the opinion that the coal of Vancouver is of Tertiary age.||

Lignite exists in abundance on the Rio del Norte, the river forming part of the boundary line between the United States and Mexico. Some specimens are so bituminous as to be of no use in the blacksmith's forge, where it runs together and becomes baked into a solid mass. Seams of lignite, three to four feet thick, are exposed on Elm Creek, a tributary of the Del Norte, and have been used and found valuable in a blacksmith's forge. This lignite occurs in Cretaceous formations.

In Europe, Tertiary lignite deposits possess considerable economic value. They are worked in France, Germany, and Switzerland. In England, the lignites of Devonshire, associated with beds of clay, are about 70 feet thick. The strata of lignite coal near the surface vary from 18 inches to four feet in thickness, separated by beds of brownish clay of about the same dimensions. The lowermost stratum of lignite coal is 16 feet thick.¶

\* Page 9. Remarks on the Tertiary and Cretaceous Formations of Nebraska, &c., by F. B. Meek and F. V. Hayden, M.D.

† Pacific Railway Reports. Vol. I., page 95.

‡ Foot note, page 110, Am. Ed. Sir John Richardson's Arctic Searching Expedition.

§ Pacific Railway Report, Vol VI., Geological Report.

|| Sir Roderick Murchison's Address at the Anniversary Meeting of the Royal Geographical Society. This opinion is not entertained by Dr. Hector, who considers the lignite at Nanino to be of Cretaceous age.

¶ Phillips.

## CHAPTER XIX.

REMARKS ON THE CRETACEOUS FOSSILS COLLECTED BY PROFESSOR HENRY Y. HIND, ON THE ASSINNIBOINE AND SASKATCHEWAN EXPLORING EXPEDITION, WITH DESCRIPTIONS OF SOME NEW SPECIES. BY F. B. MEEK.

Remarks—List of Fossils collected—Plants—Mollusca—*Anomia Flemingi*—*Inoceramus Canadensis*—*Avicula linguæformis*—*Avicula Nebrascana*—*Leda Hindi*—*Leda Evansi*—*Rostellaria Americana*—*Natica obliquata*—*Avellana concinna*—*Ammonites placenta*—*Ammonites*, sp. undt.—*Ammonites Barnstoni*—*Ammonites Billingsi*—*Scaphites nodosus*—*Scaphites Conradi*—*Nautilus Dekayi*.

The specimens submitted by Professor Hind from the Assinniboine and Saskatchewan country, together with a portion of the same collection previously sent by Mr. Billings to Dr. Hayden and the writer, establish the fact of the existence in that region of three of the five subdivisions into which the Cretaceous rocks of Nebraska are separable.\* Some of those from a locality on the Assinniboine, 150 miles west of Fort Garry, present exactly the lithological characters of Formation No. 2 of the Nebraska section, and contain small scales of fishes undistinguishable from specimens collected in that formation by Dr. Hayden on the Missouri above the mouth of Big Sioux River, and near the Black Hills.

Others more recently sent by Professor Hind, collected on Little Souris River, and near the mouth of the Two Creeks on the Assinniboine, evidently belong to a higher position in the series. Amongst these I recognize *Leda Evansi*, *Natica obliquata*, and *Avellana concinna*, all of which occur in the upper part of No. 4 and in No. 5 of the Nebraska section, but are more common in the former. As the matrix in which they occur presents exactly the lithological characters of No. 4, and is quite unlike any part of No. 5 of the Nebraska section, there is little room to doubt that the bed in which they were found represents the former of these rocks.

Several of the specimens obtained near Sand Hill Lake on Qu'Appelle River, and the South Branch of the Saskatchewan, are from a green sandstone, which is more indurated but in other respects more like the green sands of New Jersey than any I have before seen from north-western localities. In some of these there are great numbers of *Avicula linguæformis* and *A. Nebrascana*, the first of which occurs in both Nos. 4 and 5 of the Nebraska section, but is more abundant in the latter; and the other is nearly or quite restricted to No. 5, where the two formations are not blended, as is sometimes the case. As this rock differs entirely in its lithological characters from Formation No. 4,—while No. 5 is often highly arenaceous, and sometimes assumes a slight greenish tinge, at the higher northern localities in the Upper Missouri country,—the probability is that it represents No. 5, or the most recent member of the Cretaceous series of the north-west.

Amongst the specimens collected on the Saskatchewan are *Ammonites placenta*,† *Nautilus Dekayi*, and apparently a variety of *Scaphites nodosus*, all of which are generally characteristic of the upper part of Formation No. 4, but probably sometimes pass up into No. 5. Others from the same localities contain *Rostellaria Americana* and fragments of *Scaphites Conradi*, which are restricted to No. 5 where these two upper formations are not blended.

Amongst all the collections from this region, I see nothing indicating the existence of Formations Nos. 1 and 3 of the Nebraska series, though they may occur there.

The two *Ammonites* from McKenzie's River are not alone sufficient to determine the age of the rock from which they were obtained; the larger one bears considerable resemblance in form and general appearance to several Jurassic species, though they may belong to the Cretaceous epoch. It is very desirable that a good series of specimens should be obtained from this remote northern locality, not only for the purpose of determining the age of the formation, but for the light they might throw upon far more interesting questions respecting the probable climatic conditions in these high northern latitudes during the Secondary period.

*List of the Cretaceous Fossils collected, with Descriptions of the New Species.*

## PLANTS.

No. 1.—Several impressions apparently of the stems of marine plants occur in the specimens from the locality on the Assinniboine, near the mouth of the Two Creeks.

No. 2.—Along with the above there are also specimens of a very curious spiral body, differing from any fossil I ever before met with. It is a long, slender, slightly flattened, or subcylindrical body, measuring in every part of its length about 0.18 inch in its greatest diameter, and very regularly coiled into a spiral form, the turns being widely disconnected like those of a cork-screw. Each turn measures about 0.58 inch across, and there are five turns in a length of 2.15 inches. It is smooth, and shows no organic structure under a common pocket lens, the organic matter having been replaced by the fine sediment of which the matrix is composed. Unless these are the tendrils or root-like appendages by which some floating plant clung to marine bodies, I can form no conjecture in regard to their nature. (Plate 1, fig. 10.)

\* The Cretaceous series of Nebraska consists of five distinct subdivisions, which have, for convenience, been numbered 1, 2, 3, &c., from the lowest upwards.

† When this specimen was first sent to Dr. Hayden and the writer, we were not aware of the fact that any other Cretaceous fossils had been found in that region, and suggested that it might possibly have been carried north by the Indians from some of the Upper Missouri localities. The other specimens, however, obtained from there remove all doubts in regard to the existence of Cretaceous rocks on the Saskatchewan.



## MOLLUSCA.

## LAMELLIBRANCHIATA.

Gen. ANOMIA.—Lin.

No. 3.—*Anomia Flemingi*, *N. sp.*

Plate 1, Figs. 2 and 3.

Shell oval or sub-circular, compressed plano-convex, extremely thin and fragile. Lower valve flat and apparently more nearly circular than the other. Upper valve depressed convex, rounded in front, and more broadly and less regularly rounded on the ventral side; posterior margin obliquely subtruncate from the dorsal side, rather abruptly rounded, and waved so as to form a broad very obscure fold at its connexion with the ventral margin; beak small, compressed, located near the middle of the cardinal edge, but not projecting beyond it. Surface marked by small obscure lines of growth. Length 1.10 inches; breadth from beak to opposite side, one inch.

In Formation No. 4 of the Cretaceous beds in Nebraska there is a species something like this, which Dr. Hayden and I have described (but not yet published) under the name of *A. subtrigonalis*. The species now before me, however, is much more compressed, and more rounded in outline. It differs from *A. tellinoides* of Morton (Synop. Org. Rem. p. 61, pl. 5, fig. 11,) in being straighter on the cardinal side, and in having the umbo of the upper valve much less prominent and gibbous. Named after Mr. John Fleming, one of the gentlemen connected with the Saskatchewan expedition.

*Locality and position.*—Little Souris River, in soft lead gray argillaceous rock, or indurated clay, probably of the age of the fourth division of the Cretaceous series in Nebraska.

Gen. INOCERAMUS.—Sowerby.

No. 4.—*Inoceramus Canadensis*, *N. sp.*

Plate 1, Figs. 4 and 5.

Shell broad oblong-oval, compressed, apparently very nearly equi-valve; anterior side rounded; posterior side longer and more broadly rounded or subtruncate; base forming a semi-oval curve; hinge straight, of medium length; beaks small, compressed, scarcely rising above the hinge line, located near the anterior side, not very oblique; surface ornamented by small obscure irregular concentric undulations, and fine closely arranged rather indistinct lines of growth, which are generally only seen on the outer fibrous layer. Length of larger specimen about 3.35 inches; height near 2.80 inches.

The specimens of this species in the collection are imperfect, but retain enough of its character to show it is distinct from any of the known species in the Nebraska formations. It resembles somewhat *I. Sagensis*, Owen (Report, Wisconsin, Iowa, and Minnesota, Tab. VII. fig. 3), but is much more compressed, and longer in proportion to its height.

It also bears some resemblance to *I. regularis*, D'Obigny (Pal. Franc, T. 3, pl. 410), but is not near so deeply rounded on the ventral border, and is more compressed.

*Locality and position.*—Same as last.

Gen. AVICULA.—Klein.

No. 5.—*Avicula linguæformis*.

Plate 1, Fig. 6.

*Avicula linguæformis*, Evans and Shumard, Proceed. Acad. Nat. Sci. Phila. Vol. VII., p. 163.

*Locality and position.*—Sandy Hills, South Branch Saskatchewan. Height of land in the Qu'Appelle Valley, near the Elbow of South Branch of the Saskatchewan, Upper Cretaceous.

No. 6.—*Avicula Nebrascana*.

Plate 1, Fig. 7.

*Avicula Nebrascana*, Evans and Shumard, Trans. Acad. Sci. St. Louis. Vol. I., p. 38.

*Locality and position.*—South Branch of the Saskatchewan.—Upper Cretaceous.

Gen. LEDA.—Schumacher.

No. 7.—*Leda Hindi*, *N. sp.*

Plate 1, Figs. 8 and 9.

Shell small, sub-ovate, compressed; anterior side narrowly rounded; pallial border forming a broad semi-oval or semi-ovate curve, not crenulate within; posterior side a little longer than the other, much compressed, distinctly sinuous below, and provided with a narrow, short, obtusely-pointed rostriform extension above; umbones depressed, located a little in advance of the middle; hinge having about 12 teeth in front of the beaks, and probably more behind; surface ornamented by distinct, regularly arranged, rather strong concentric lines. Length 0.35 inch; height 0.18 inch.

This is a very neat little shell, which will be readily distinguished from any of the species yet known in the Nebraska Cretaceous rocks, by the distinct sinus in its postero-ventral margin. Even where the border is broken away the curve of the concentric lines will always show that the sinus did exist in its margin.

The specimen does not show the pallial line, but in form and general appearance the shell is more like *Leda* than *Nucula*; it may, however, possibly belong to the latter genus.

The specific name is given in honour of Prof. Henry Y. Hind, of Trinity College, Toronto, in charge of the Assiniboine and Saskatchewan Exploring Expedition, to whose zeal and industry we are indebted for much interesting information respecting the geology and topography of the country explored.

*Locality and position.*—Little Souris River, from an equivalent to No. 4 of the Nebraska section.

No. 8.—*Leda Evansi*.*Leda Evansi*, Meek and Hayden, Proceed. Acad. Nat. Sci. Phila., Ap. 1856, p. 84.*Locality and position*.—South Branch of the Saskatchewan; same geological position as last.

## GASTEROPODA.

Gen. ROSTELLARIA.—Lamk.

No. 9.—*Rostellaria Americana*.*Rostellaria Americana*.—Evans and Shumard, Trans. St. Louis Acad. Sci., Vol. I., p. 42.*Locality and position*.—South Branch of the Saskatchewan, Upper Cretaceous.

Gen. NATICA.—Adanson.

No. 10.—*Natica obliquata*.*Natica obliquata*.—Hall and Meek, Mem. Acad. Arts and Sci., Boston, Vol. V., N. s., p. 384, pl. 3, fig. 1.*Locality and position*.—Two Creeks, on the Assiniboine; in bed representing Formation No. 4 of the Nebraska Cretaceous.

Gen. AVELLANA.—D'Obigny.

No. 11.—*Avellana concinna*.*Acteon concinna*.—Hall and Meek, Mem. Am. Acad. Arts and Scien., Boston, Vol. V., N. s., p. 388, pl. 2, fig. 6.The specimen of this species, first figured in the paper above cited, is either a young individual, or the outer lip was broken away; for that now before me, which is evidently the same species, has a strong thickened outer lip; consequently it cannot be a true *Acteon*, but agrees more nearly with the characters of the genus *Avellana*.*Locality and position*.—Same as last

## CEPHALOPODA.

Gen. AMMONITES.—Bruguiere.

No. 12.—*Ammonites placenta*.*Ammonites placenta*.—Dekay, N. Y. Lyc. Nat. Hist., Vol. II., pl. 5, fig. 2; Jour. Acad. Nat. Sci. Phila., Vol. VI., p. 88, &c.; Morton, Synop. Org. Rem., p. 36, pl. 2, figs. 1 and 2.*Locality and position*.—South Branch of the Saskatchewan, from an equivalent of Formation No. 4 of the Nebraska Cretaceous series.No. 13.—*Ammonites*.—*Sp. undt. (fragments.)**Locality and position*.—Two Creeks, Eq. No. 4 of Nebraska Cretaceous.No. 14.—*Ammonites Barnstoni*, *N. sp.*

Plate 2, Figs. 1–3.

Shell compressed subglobose, broadly rounded on the dorsum, and prominent or subangular around the umbilicus, which is deep, conical, and nearly as broad as the outer whorl. Volutions having their greater diameter at right angles to that of the shell; each of the inner ones about three-fourths hidden in the profound ventral groove of the succeeding turn. Surface ornamented by distinct regular costæ, which are sharply elevated around the umbilicus into small elongated subnodose prominences; and at less than half the distance across the sides of the whorl their number is increased nearly threefold by division and implantation; after which they become of uniform size, and arch gently forward in passing over the dorsum.

The septa are deeply divided into five principal lobes and six saddles, which are crowded together, and variously branched and subdivided. The dorsal lobe is a little longer than wide, and has three branches on each side, the two terminal of which are nearly straight and parallel; the first two lateral branches above these are nearly of the same size, but more diverging; while the third pair are much smaller, and all sharply digitate, and more or less subdivided. The dorsal saddle is longer than wide, contracted in the middle, and irregularly divided into four unequal branches, the two terminal of which are subdivided into two branchlets each, and all obtusely digitate, and variously sinuous in the margins.

The superior lateral lobe is longer than the dorsal lobe, but very irregularly branched, and, like it, provided with numerous sharp digitations on all its divisions; at the extremity it has three very unequal branches, the middle one of which is much longer than the others, and very slender; the other two are small, unequal, opposite, and diverging, that on the right being subdivided nearly to its base; above these there are several other unequal alternating lateral branches, one of which on the right side is much larger than the others. The lateral saddle is rather smaller than the dorsal, and divided at the extremity into two very unequal branches, of which the one on the left is larger than the other, and again deeply divided into two bifid and deeply sinuous brachlets. The inferior lateral lobe is much smaller than the superior, and very irregularly divided into two or three alternating unequal lateral branches on each side, and one terminal branch, with numerous sinuosities. The ventral lobe is very small, and simply digitate.

This species bears considerable resemblance in form and in the size and character of its umbilicus to the Jurassic species *A. irens*, D'Obigny (Pal. Franc., Tome I., p. 562, pl. 222), but differs in having the costæ pinched up into little subnodose prominences around the umbilicus, and bifurcating on the sides; they are also much more arched in passing over the dorsum. It is quite different from any of



the described species from the Nebraska rocks, though I think I have seen some fragments of it in Lieut. Warren's collections from No. 4 of the Nebraska Cretaceous subdivisions.

The specific name is given in honour of Mr. Geo. Barnston, chief factor of the Hudson's Bay Company, who discovered it in the valley of Mackenzie's River. It is probably a Cretaceous species, but may be of Jurassic age.

No. 15.—*Ammonites Billingsi*, *N. sp.*

Plate 2, Figs. 4, 5, and 6.

Shell moderately compressed, or subdiscoidal; dorsum rounded; umbilicus very small; volutions having their greater breadth at right angles to the shorter diameter of the shell, increasing rather rapidly in size, or more than doubling their diameter each turn; inner ones entirely embraced and hidden in the ventral groove of the last turn; surface apparently smooth, but showing very faint traces of radiating costæ, which arch a little in crossing the dorsum.

Dorsal lobe longer than wide, provided with three branches on each side, the two terminal of which are much longer than the others and each subdivided, the subdivisions being short, and each having two or three small digitations; the first two lateral branches above these are small, opposite, very diverging, and bifid or digitate, and the third pair very small and apparently simple. The dorsal saddle is as long as the dorsal lobe, but narrower, and has three or four short, obtusely rounded branches on each side. The superior lateral lobe is nearly as large as the dorsal saddle, and has three subequal branches at the extremity, that on the dorsal side being bifurcate, with digitate divisions, and the middle and other lateral divisions are provided with three or more small digitations each. The inferior lateral lobe is much smaller than the superior lateral, and has much the same form, excepting that its terminal division is proportionally larger, and the principal lateral division on the dorsal side is not so deeply divided. The ventral lobe is a little smaller, but in other respects very similar to the inferior lateral lobe. Between it and the umbilicus there appears to be one or two smaller auxiliary ventral lobes, which seem to show a tendency to branch in the same way as the principal ventral lobe.

The specimen from which the foregoing description was made out is evidently a young shell; consequently, adult individuals of the same species may be expected to possess much more distinct costæ. The lobes and saddles of the septa, in old shells, will also be found much more deeply divided and more complex, but the mode of branching probably remains the same from the time the principal divisions are formed.

As the specimen described was found in the matrix filling the umbilicus of *A. Barnstoni* (being only 0.67 inch in its greatest diameter), it might be supposed by those who know how widely the *Ammonites* sometimes vary at different ages, that it may be the young of that species. It presents fundamental differences, however, in the mode of branching of the lobes and saddles of its septa that cannot be due to different stages of development. In addition to this, I found along with it a much smaller specimen, evidently the young of *A. Barnstoni*, which shows that the young of that species did not vary in form materially from the adult, and is quite different from the species now under consideration.

It has much the form of *A. Halli*, Meek and Hayden (Proceed. Acad. Nat. Sci. Phil., Vol. VIII., p. 70), and there are no differences in the structure of the dorsal lobes of the two that might not be due to different degrees of development. Their superior lateral lobes and dorsal saddles, however, present radical differences, such as we never see in the same species, however widely they may differ in size or age.

I have named this species in honour of Mr. E. Billings, the accomplished palæontologist of the Canadian Geological Survey.

Gen. SCAPHITES.—Parkinson.

No. 16.—*Scaphites nodosus?* *Var.*

Plate 2, Figs. 7 and 8.

*Scaphites nodosus* [?].—Owen, 1852. Rept. Iowa, Wiscn., and Min.

*Locality*.—South Branch of the Saskatchewan, from an equivalent of Formation No. 4 of Nebraska section.

No. 17.—*Scaphites Conradi*.

*Ammonites Conradi*.—Morton, 1834. Synop. Org. Rem., p. 39, pl. 19, fig. 4.

*Scaphites Conradi*.—D'Obigny, 1850. Prodromus, p. 214.

*Ammonites Nebrascensis*, &c.—Owen, 1852. Rep. Iowa, &c.

*Scaphites Conradi*.—Meek and Hayden, 1856. Acad. Nat. Sci. Phila., p. 281.

*Locality and position*.—South Branch of the Saskatchewan; No. 5, Nebraska section, or most recent Cretaceous.

Gen. NAUTILUS.—Bruguiere.

No. 18.—*Nautilus Dekayi*.

Plate 2, Figs. 9 and 10.

*Nautilus Dekayi*.—Morton, 1834. Synop. Org. Rem., pl. viii., fig. 4, and pl. xiii., fig. 4.

*Locality and position*.—South Branch of the Saskatchewan; Upper Cretaceous.

## CHAPTER XX.

ON SOME OF THE SILURIAN AND DEVONIAN FOSSILS COLLECTED BY PROFESSOR HENRY Y. HIND, ON THE ASSINNIBOINE AND SASKATCHEWAN EXPLORING EXPEDITION. BY E. BILLINGS, F.G.S.

Office of the Geological Survey of Canada,  
Montreal, 15th November 1859.

The Silurian fossils from Lake Winnipeg and the Saskatchewan are interesting, but unfortunately many of the specimens are in such a bad state of preservation that little can be said about them except to indicate the species to which they appear to belong. The following constitute the principal part of the collection.

## PLANTÆ.

Two species of fucoids from Punk Island in Lake Winnipeg, resembling forms which occur in the Chazy sandstone.

## ZOOPHYTA.

The only coral is a species allied to *Columnaria alveolata*. It is from Grindstone Point, Lake Winnipeg.

## ECHINODERMATA.

Columns of a large *Glyptocrinus*, allied to *G. ramulosus*, occur at Punk Island and Grindstone Point, and besides these, at the latter locality were found several plates of a *Glyptocystites*, closely allied to *G. multiporus*.

## BRACHIOPODA.

Two specimens of a plaited Rhyconella, a little smaller than *R. plena*, were found at Punk Island.

## LAMELLIBRANCHIATA.

*Modiolopsis parviuscula*, *N. sp.*

This species closely resembles *M. modiolaris* (Conrad), but is always much smaller. It is transversely elongate, anterior extremity small, rounded half the width of the posterior; the latter obliquely truncated and somewhat straight from the end of the hinge line for rather more than half the width, then rounded at the lower posterior angle. Hinge line straight or a little arched full three-fourths the whole length of the shell. The umbones are less than one-fifth the length from the anterior extremity. The valves are moderately convex, obscurely and obliquely carinate from the umbones towards the lower posterior angle. In many specimens the ventral margin is concave near the anterior extremity, as if for the purpose of a byssus. Surface with obscure concentric undulations of growth. Length of large specimen, one and a half inch. In general they are a good deal smaller.

This shell so much resembles *M. modiolaris*, that I have long hesitated as to the propriety of giving it a separate name. It is very widely distributed, since we have specimens from Lake Winnipeg at Punk Island, from the Pallideau Islands in Lake Huron, where it occurs in strata which hold fossils of the Chazy, Black River and Trenton limestones, and from near Cornwall and the Island of Montreal in the Chazy.

Besides the above there are several small nearly circular fossils from Punk Island, which appear to be casts of some lamellibranchiate shell.

## GASTEROPODA.

*Trochonema umbilicata* (Hall, Sp.) This species occurs at Lake Winnipeg and at the Little Saskatchewan in considerable numbers. A species allied to *Pleurotomaria rotuloides* (Hall) is common at Punk Island, and a *Maclurea* allied to *M. Loganii* (Salter), but with more slender whorls, was found at Punk Island and the Little Saskatchewan. One of the specimens has the operculum in place, but is destitute of the shell and somewhat distorted. None of the Gasteropoda have the shell preserved.

## CEPHALOPODA.

*Orthoceras Simpsoni*, *N. sp.*

## Plate 1, Fig. 1.

The specimen is a portion of the siphuncle,  $9\frac{1}{4}$  inches in length, 11 lines in diameter at the larger extremity, and 10 at the smaller. It is nearly cylindrical, with a broad, shallow constriction above and below each of the narrow annulations which mark the attachment of the septa. There are eight of those septal rings at the following distances from each other, commencing at the smaller extremity. Between the first and second, 14 lines; second and third, 12 lines; third and fourth,  $10\frac{1}{2}$  lines; fourth and fifth,  $13\frac{1}{2}$  lines; fifth and sixth, 15 lines; sixth and seventh,  $13\frac{1}{2}$  lines; seventh and eighth,  $12\frac{1}{2}$  lines. The annulations are nearly at right angles to the length, and we must infer from this fact either that the septa are scarcely at all concave, or that the siphuncle must be central, or very nearly so. If in an orthoceratite the septa are flat, then, no matter whether the siphuncle be central or not, the septal annulations must be at right angles; but if the septa are concave, then the annulations will be oblique if the siphuncle be at all removed from the centre. My impression is, that this is a large orthoceratite, with distant septa and a nearly central siphuncle, since the annulations have a scarcely perceptible obliquity.

It is one of those species in which the siphuncle became gradually filled with a solid calcareous animal secretion, with the exception of a narrow cylindrical channel along the centre. This central canal is clearly indicated in the specimen, and has a diameter of nearly two lines.

Dedicated to Sir George Simpson, Governor of the Hudson's Bay Company.

*Locality and formation.*—Cat Head, Lake Winnipeg, supposed to be Silurian.

Besides the above, there are several other cephalopods, all of which are in a bad state of preservation, and cannot be determined without much study and comparison.

A small serpulites appears to be common at Punk Island; it much resembles the large species of the Chazy limestone.



The occurrence of *M. parviuscula*, *H. umbilicata*, the *Maclurea*, and *Glyptocystites* are quite sufficient to show that the localities where they have been collected are Lower Silurian, and most probably about the age of the Black River and Chazy limestones.

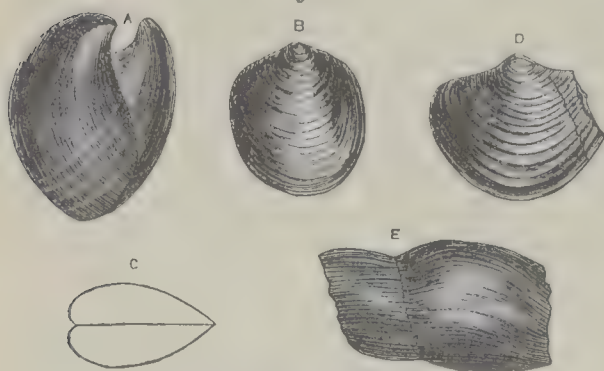
## DEVONIAN.

The following are the fossils from Snake Island in Lake Winnipegosis.

*Atrypa reticularis* (Linne,) in abundance, both the common form, with moderately coarse ribs and the more finely striated varieties, *Atrypa aspera* (Schlotheim). The specimens very closely resemble those figured by Professor Hall, in his new work, the "Geology of Iowa," plate 6, figs. 3, *a*, *b*, *c*, *d*, but are a little more pointed in front. A fine *Orthis* agrees well with the figures and descriptions of *O. Iowensis* (Hall), Geology of Iowa, plate 2, fig. 4, but is a little longer. The proportions are the same, but the length, breadth, and depth are each two lines greater than the figures. Besides these there are fragments of several other Brachiopods, among which are two small species of *Productus*.

## FOSSILS FROM SNAKE ISLAND.

Fig. 1.



- a.* *Orthis Iowensis* (Hall), side view.  
*b.* *Lucina occidentalis* (Billings).  
*c.* " " Outlines of same, side view.  
*d.* *Lucina elliptica* (Conrad).  
*e.* *Loxonema nexilis*?

At Thunder Island, St. Martin's Lake, the *Stromatopora* occurs, with abundance of a small *Strophomena* and some corals, not determinable.

*Lucina Occidentalis*, *N. sp.*

Oval, length about one-ninth greater than the width, hinge line gently convex, cardinal extremities obtusely rounded, anterior and posterior margins gently convex, subparallel ventral margin rounded or a little pointed in the centre; beaks central, small, pointed, incurved, nearly in contact with each other, and turned a little towards the anterior extremity; both valves moderately convex and marked with concentric undulations of growth.

Length of specimen, nine lines, width eight lines, depth of both valves, five lines. The greatest width is at about one-fourth the length below the beaks, from which level the margins converge but little, until within two-fifths of the length of the front, when they become more strongly curved.

*Locality and formation.*—Snake Island, Lake Winnipegosis. Devonian.

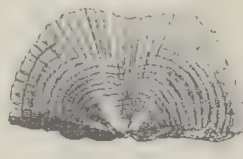
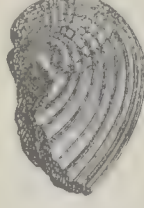
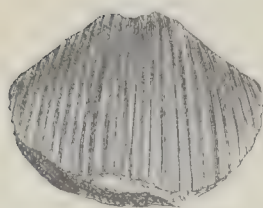
## (PRODUCTUS—?)

Supposed to be from Carboniferous Limestone.

Fig. 1.

Fig. 2.

Fig. 3.



- Fig. 1. *Productus*, from Red River.  
 Fig. 2. " " side view.  
 Fig. 3. " " rostral extremity.

There is some evidence of the existence of at least a portion of the Carboniferous system in this region. The fossil procured from the half-breed, who said he collected it from "the solid" rock, at some place on the Red River, is a *Productus* of the group *Semireticulati*, all of which appear to be confined to the Carboniferous series. The specimen is not worn and presents all the appearance of having been freshly broken from the rock. If it were procured from a boulder, then there must be carboniferous limestone north of the locality, as no boulders have travelled from the south.

E. BILLINGS.

\* The following label was attached to this specimen, "Given to me by a half-breed, who declared he picked it from 'solid rock' in Red River." (Doubtful.) H. Y. H.

The importance of any evidence of the Carboniferous series in the Valley of Lake Winnipeg cannot be too highly rated, although I do not think that much reliance is to be placed upon the statement in the foregoing label. "Solid rock" occurs as far as known in the Valley of Red River, in two places only, at the Stone Fort and above, at and below the Rapids, from which places both Dr. Owen and I obtained Lower Silurian fossils from rock in position. It is probable that the specimen was procured from a boulder; but boulders are brought north each year from Minnesota by the ice of Red River; it is therefore quite possible that the specimen figured above was brought by ice from the south. Under any circumstances, its presence within 30 miles of the mouth of Red River is an important fact, and affords good ground for hope, that if the Carboniferous series are not represented on the flanks of the Riding, Duck, and Porcupine Mountains, they will be found in the State of Minnesota, or Dacotah, on the north side of the Height of Land, and in the Valley of Red River. H. Y. H.

## CHAPTER XXI.

ADDITIONAL REMARKS ON THE PIGEON RIVER ROUTE, WITH AN ESTIMATE OF THE COST OF OPENING IT FOR COMMERCIAL TRAFFIC. BY J. A. DICKINSON, C. E.

SIR,

At the end of my Report on the Pigeon River route, dated Red River, 8th June 1858, I mentioned that Mr. Dawson was to make a complete exploration and survey of it, and that he would therefore be better able than I was to form an opinion of its capabilities and required improvements. I have since then seen and examined the profile or section of it taken by Mr. Dawson, as well as that of the Kaministiquia and Rivière La Seine route, and have read his reports on the same. After having carefully compared these two profiles together, I see no reason for changing my opinion expressed in a former report, as to the relative merits of the two routes, but which I am sorry to say is not in accordance with Mr. Dawson's. I am induced, therefore, to write a short additional report on this important subject, in which it will be my endeavour, first, to show the superiority of the so-called Pigeon River route over the other in their present natural condition as well as in their capabilities of improvement, and then to suggest some simple means for improving the Pigeon River route at a small cost.

On looking at the profile of this route one is struck by its similarity to the profile of an artificial canal; for with the exception of the Pigeon River and the Nameukan, this route consists of a close chain of lakes, only requiring locks to form a canal sufficient for boats or steamers as large as will ever be needed for carrying the traffic of the country. It will be shown hereafter how the Pigeon River can be avoided, and the Nameukan presents no difficulties that cannot be easily overcome.

The profile of the Kaministiquia and Rivière La Seine route shows that out of a length of 240 miles, there is only about 95 miles of lake navigation; the remaining 145 miles consists of rivers of various velocities. Now the advantages of lakes over rivers for the purposes of navigation are many and important; 1st, the absence of currents in lakes, which in rivers impede the upward navigation more than they assist the downward. 2ndly, lakes are not subject to the great and sudden changes of level which occur in most rivers. 3rdly, a high flood in a lake would be of no consequence, whereas in a river it might be dangerous and full of difficulties. 4thly, long and straight courses may be obtained on lakes, and the steering of craft is consequently easy; but on rivers, owing to their windings and eddies, steering is troublesome and difficult.

These are some of the reasons for my preferring the route by the lakes to the Kaministiquia and Rivière La Seine route; the others being that it is shorter by several miles, that the portages on it are better, and lastly that it passes through a country bearing superior timber. This for a long period of years was the route travelled by the old voyageurs, and was only given up, I understand, on account of the length of the Grand Portage, which was supposed to have had a bad effect on the spirits of the men, occurring as it did at the commencement of their journey. I may remark, in confirmation of my opinion, that our guide, who was with us on both routes, and who had made some 40 journeys between Lake Superior and Red River, said he much preferred the Pigeon River route to any other, and how could there be a person better qualified for being a judge than he?

The lakes on the Pigeon River route are all deep, free from shoals and rocks, wide, and yet not so wide as to be affected by winds. The works necessary for the improvements of either of these routes are of course of the same character, but for the same reasons that make the Pigeon River route preferable to the other even now, the works on it could be more easily executed; they would cost less and be more permanent. A dam placed across a river is always liable to be more or less damaged by freshets, and most of those on the Rivière La Seine route would, moreover, I think, flood a great portion of the country; whereas dams built at the head of the streams issuing from the lakes would not have to bear any extraordinary force arising from a sudden rush of water, and would therefore be more stable. The portages on the Pigeon River route being better than those on the other will of course cost less for improvements, and if hereafter locks were to be made where the portages are now, the lakes will afford a much surer and more abundant supply of water for them than the rivers. The means that might be adopted for making this Pigeon River route sufficient for any purposes that are likely to be required at present or for some time to come are the following:—

The repairing or perhaps remaking of the old North-west Company's road from Point des Meurons, near Fort William, to Arrow Lake. This road is only about 45 miles long, and has been reported favourably on by a member of the Red River Expedition, who examined it in the year 1857. The difficulties that there would be in improving the portion of the route between Lake Superior and the Height of Land in any way compel the necessity of this road being made use of. Arrow Lake will then be the commencement of the water communication. Boats capable of carrying five tons, such as are at present used by the Hudson's Bay Company, to be employed on the lakes as far as Rainy Lake. In order to avoid the unloading and re-loading of the boats at the portages, iron tramways might be laid down at these places, by which the loaded boat might be carried from one lake to another, and thus save a great deal of time and trouble. Some of the present portages might be got rid of with little expense, by clearing out the passage between two lakes and placing a dam so that the water in the lower lake would rise to the level of the upper one, and so deepen the connecting channel and get rid of the rapid or fall in it. This could be done in several cases. On Rainy Lake a steamer might be placed,—one of the ordinary lake steamers,—which could go as far as Fort Francis on Rainy River. Here, on account of the falls, a transshipment must be made to another steamer, which can ply the whole way between the falls and the north-west corner of the Lake of the Woods. From this point a road to be made across to the Red River Settlement. This road would not be more than 100 miles long, the greater part of it, 70 miles



at least, would, I know from my own knowledge (*see* my Report, No. 7, p. 28), be made without any difficulty. The following is a rough estimate of the cost of these several works:—

Road from Point des Meurons (Fort William) to Arrow Lake	£1,000
Tramways over the portages - - - - -	5,000
Dams - - - - -	2,000
Road from the Lake of the Woods to Red River - - -	1,500
Depôts - - - - -	500
Engineering and contingencies - - - - -	1,500
	<u>£11,500</u>

I think it is quite safe to say that the expenses for making the improvements I have suggested would be considerably under 12,000*l.* sterling.

The length of the proposed route, and the time it will take to perform the journey, will be—

	Length.	Hours.
Carriage roads - - - - -	145	36
Tramways - - - - -	3	6
Boat navigation - - - - -	156	39
Steam navigation - - - - -	186	18
Total - - - - -	<u>490</u>	<u>99</u>

Allowing a rest of eight hours in the 24, the journey may easily be accomplished in less than six days. Mr. Dawson has stated that it will take but “three days, as near as may be,” to accomplish the journey by the other route, but it appears he takes no thought of the necessary delays at the portages or of the rest necessary both for the travellers and the boatmen, and he proposes to run at night on unlighted and intricate waters. The journey might no doubt be made in five days, if necessary, by the route I propose; but allowing for accidents and delays, I think it better to calculate on its taking six.

In conclusion, I would say that, before works of any magnitude are undertaken for the opening out of a communication between Lake Superior and Red River it would be advisable that a more accurate survey than has as yet been taken should be made of the whole country.

H. Y. Hind, Esq.  
&c. &c.

Yours truly,  
JAMES AUSTEN DICKINSON.

TABLE of the PORTAGES, DÉCHARGES, RAPIDS, LAKES, LAKE STRAITS, and NAVIGABLE CHANNELS on the PIGEON RIVER ROUTE (the old North-west Company's Route) from LAKE SUPERIOR to RAINY LAKE, showing their LENGTHS and DISTANCE from LAKE SUPERIOR.\*

Portages.	Length in St. Miles.	Décharges.		Rapids.		Lakes.		Lake Straits and Navigable Channels.		Distance from Lake Superior. Statute Miles.	Remarks.
			Length in St. Miles.		Length in St. Miles.		Length in St. Miles.		Length in St. Miles.		
1. Grand Portage -	8.16	-	-	-	-	-	-	-	-	0.00	
2. Partridge Portage	0.25	-	-	-	-	-	-	1. Pigeon R.	1.50	8.16	
		1. Décharge	0.25	-	-	-	-	2. Pigeon R.	4.25	9.66	
		2. Décharge	0.35	-	-	-	-	3. Pigeon R.	1.75	14.41	Strong current. Canoes poled up part of the way.
3. Fowl Portage -	1.13	-	-	-	-	-	-	4. Pigeon R.	3.13	16.51	
4. Moose Portage -	0.41	-	-	-	-	1. Fowl Lake	4.55	-	-	19.64	
5. Great Cherry Port.	0.48	-	-	-	-	2. Moose Lake	4.25	-	-	25.32	
6. Mud Portage -	0.15	-	-	-	-	3. Lake	0.25	-	-	25.73	
7. Lesser Cherry P.	0.13	-	-	-	-	4. Lake	0.30	-	-	29.98	
8. Watap Portage -	0.30	-	-	-	-	5. Mountain L.	7.81	-	-	30.46	
9. Great New Port.	1.46	-	-	-	-	6. Watap Lake	3.70	-	-	30.71	
10. Portage -	0.01	-	-	-	-	7. Rose Lake	3.00	-	-	30.86	
11. Portage -	0.21	-	-	-	-	8. Mud Lake	2.62	-	-	31.16	
12. Height of Land P.	0.26	-	-	-	-	9. South Lake	2.84	-	-	31.29	
		3. Décharge	0.01	-	-	10. Gun Flint L.E.	2.77	-	-	39.10	
				1. Rapid	0.01	11. Gun Flint L.W.	8.92	-	-	39.40	4 feet fall.
13. Little Rock Port.	0.02	-	-	-	-			5. Lake Strait	0.25	43.10	
				2. Rapid	0.01			6. Lake Strait	0.75	44.56	
								7. Lake Strait	0.25	47.56	

\* The distances are from the International Boundary Survey,—made according to the 7th article of the Treaty of Ghent.

Portages.		Décharges.		Rapids.		Lakes.		Lake Straits and Navigable Channels.		Distance from Lake Superior.	Remarks.
	Length in St. Miles.		Length in St. Miles.		Length in St. Miles.		Length in St. Miles.		Length in St. Miles.	Statute Miles.	
14. Mill Fall Portage	0·06	-	-	-	-	-	-	-	-	66·49	3 ft. fall, 2 ft. deep. North canoes let down by line. 5 ft. fall, 2 chs. wide. North canoes let down by line. 4 ft. fall, 25 ft. wide. North canoes let down by line. 3 ft. fall. North canoes let down by line. 1 ft. fall. Run by loaded North canoes. 1 ft. fall. Run by loaded North canoes. 2½ feet fall. 5 feet fall.
15. Island Portage	0·29	-	-	-	-	-	-	-	-	66·55	
				3. Rapid	0·02	12. Lake	1·35	-	-	66·80	
				4. Rapid	0·07	13. Lake	0·85	-	-	67·09	
				5. Rapid	0·05	-	-	9. Lake Strait	0·50	68·44	
				6. Rapid	0·04	-	-	10. Lake Str.	0·12	68·46	
				7. Rapid	0·01	-	-	11. Lake Str.	0·20	69·31	
				8. Rapid	0·01	-	-	12. Lake Str.	0·45	69·38	
				9. Rapid	0·02	-	-	13. Lake Str.	-	70·13	
		14. Décharge	0·05	-	-	14. Lake	5·35	-	0·70	70·18	
16. Portage	0·01	-	-	-	-	-	-	14. Lake Str.	-	70·68	
17. Portage	0·01	-	-	-	-	15. L. Seiganagah	10·07	-	-	70·72	
18. Swamp Portage	0·24	-	-	-	-	16. Swamp Lake	0·82	-	-	70·72	
19. Portage	0·02	-	-	-	-	17. Cypress Lake	5·35	-	-	70·84	
20. Portage	0·04	-	-	-	-	18. Knife Lake	10·70	-	0·20	70·85	
21. Portage	0·09	-	-	-	-	-	-	15. Lake Str.	-	71·05	
22. Carp Portage	0·15	-	-	-	-	19. Lake	0·60	-	-	71·06	
23. Portage	0·11	-	-	-	-	20. Birch Lake	4·00	-	-	71·51	
24. Portage	0·10	-	-	-	-	21. Basswood L.	16·00	-	-	71·53	
25. Fir Portage	0·20	-	-	-	-	-	-	16. Lake Str.	0·25	76·88	
				10. Rapid	0·04	-	-	17. Lake Str.	0·22	76·93	
				11. Rapid	0·02	-	-	18. Lake Str.	0·35	77·63	
26. Portage	0·07	-	-	-	-	22. Lake	0·65	-	-	77·64	3 feet fall.
27. Portage	0·09	-	-	-	-	23. Crooked L.	16·80	-	-	77·71	
28. Curtain Fall Por.	0·10	-	-	-	-	-	-	-	-	77·72	2 feet fall.
				12. Rapid	0·03	24. Iron Lake	4·50	-	-	78·78	
29. Bottle Portage	0·25	-	-	-	-	25. Nequaquon L.	22·10	-	-	88·54	3 feet fall.
30. Portage	0·12	-	-	-	-	26. Lake	5·60	-	-	88·78	
31. Portage	0·15	-	-	-	-	-	-	20. Lake Str.	0·50	94·13	
32. Portage	0·04	-	-	-	-	-	-	21. Loon's Narrows	7·60	94·15	
				-	-	27. Sandpoint L.	9·67	-	-	104·85	
				-	-	28. Nameukan L.	5·20	-	-	104·89	
33. Nu Portage	0·08	-	-	-	-	-	-	-	-	105·09	
34. Portage	0·14	-	-	-	-	-	-	22. Lakelet	0·25	105·18	
				-	-	-	-	23. Lake Str.	5·20	105·78	
				-	-	-	-	-	-	105·93	
Total	15·33	Total	0·66	Total	0·33	Total	160·62	Total	30·92	207·86	Statute miles to Rainy Lake.

SYNOPSIS of the FOREGOING TABLE of the PIGEON RIVER ROUTE.

Land Carriage	-	-	-	Statute Miles.	-	15' 33	16' 32 stat. miles Interrupted Navigation.
Décharges	-	-	-	-	0' 66		
Rapids	-	-	-	-	0' 33		
Lakes	-	-	-	-	160' 62	191' 64 stat. miles Navigable Water.	
Lake Straits	-	-	-	-	30' 92		

Aggregate distance - - 207·86 from Lake Superior to Rainy Lake.  
Distance from Lake Superior to Rainy Lake, *viâ* the Kaministiquia route = 263·34 statute miles.



## APPENDIX.

## I.

METHODS TO BE PURSUED IN DETERMINING THE DATA FOR THE BASIS OF THE MAPS AND  
REPORTS OF THIS EXPLORATION.

In order to determine, within the limited period allotted for field operations, the topographical and geological character of the region indicated for exploration, and to describe faithfully and in detail its characteristic features and adaptability for settlement, it is necessary that the most expeditious method of conducting the exploratory survey be adopted, combined at the same time with every possible accuracy. As it may become advisable during the progress of the exploration to form different divisions, the following rules and suggestions are designed for general guidance, in order that the explorations and surveys may be made on a uniform system. An extensive equipment of instruments may not be supplied to each observer; he must therefore make the best use of those with which he is provided, and follow those rules which are best adapted to his mode of travelling.

Observations for latitude and longitude should be made whenever there is an opportunity, and especially at such places as the Honourable Hudson Bay Company's forts, the mouths, forks, and sources of rivers, the extremities of lakes, and at prominent hills. The magnetic variation should, if possible, be determined at every convenient camp. The delineation of the topography of the country between established positions is to be accomplished by track-survey. The courses, and cross-bearings to all conspicuous points, are to be taken by magnetic compass, and the intermediate itinerary distances to be ascertained by micrometer, or viameter, or by the measured and corrected velocity of the carts, canoes, or boats. With a view to make a complete reconnaissance of a considerable breadth of country, lateral traverses should be made at stated intervals on either side of the main lines of exploration.

When surveying rivers or lakes in a boat or canoe, the instruments essentially required for the track are a watch, a magnetic compass, a log-line, and a sounding-line. At every bend of a river the direction of the reach in front is to be taken with the compass, and when the reach is very long the boat must be stopped in order that the course may be taken more accurately. The times of arriving at and departing from each bend, or the vertex of two courses, and the length of any halt upon a reach or course, are to be carefully noted. The velocity of the boat is to be determined by the log-line, with which frequent observations are to be made, particularly when any change in the rate is supposed to occur. In rivers it is first necessary to measure the velocity of the current, as it has to be added to or subtracted from the *apparent* rate of the boat, indicated by log-line before the true rate is ascertained. The depth, particularly of large rivers and lakes, is to be taken at close intervals, and the height of any water-mark above the present level. The width of the rivers is to be recorded (from measurement when possible) whenever it seems to vary. The height of the banks and flood-marks are also to be noted. The position and dimensions of islands, tributary streams, sand-bars, boulders, &c., are to be ascertained. It being very difficult to estimate correctly the fall or length of swift rapids, it will be necessary to make instrumental observations for this purpose, at least whenever it is possible to do so; and when they occur on large rivers, very particular descriptions of them, and their portages, if there are any, should be given. Accurate cross-sections of rivers, with the mean rate of current at each place, should be made as frequently as possible. Whenever it can be done, it would be most desirable, in addition to taking cross-sections and rate of current, to ascertain by levelling the fall of the river in some *measured* distance, as a quarter or half a mile. These observations and measurements will be of the greatest use in determining the descent in rivers whose general dimensions and rate of current are known, thereby enabling sections or profiles to be made of them hereafter. In ascertaining the rate of current, it should be measured with the log-line at certain intervals *across* the river, as it varies in different parts.

When surveying the coast of a lake, the boat or canoe should be steered in as straight a line as possible from one point or headland to another, and propelled at a uniform rate, so that the compass or log-line will not be required so often, and there will be more time for delineating the coast, taking soundings, and general observations. The positions of islands and intermediate points can be established more accurately by taking several intersecting bearings to them from points already determined on the course, which is the base-line, than by estimation, as the eye is oftentimes deceived in distances.

On land there are several ways of obtaining distances expeditiously, differing in accuracy according to the nature of the ground. In an *open, hilly* country, Rochon's micrometer-telescope is the best, but it may be found to retard progress. On *level* ground a viameter gives very accurate results; there are many occasions, however, when it cannot be used. Determining the track distances by the time and rate of travelling will probably be the method most used on this survey. The rate therefore at which the carts travel should be known as near as can be, and should be adhered to as much as possible. Three miles an hour is the average rate at which horses walk, but it can be tried occasionally by timing them on a *measured* distance. Due allowances must of course be made for undulations in the ground and the windings of the track. The position of distant hills or other conspicuous objects, and the width of valleys, should be determined by triangulation when the ground is suitable for measuring a base-line. The heights of hills or mountains, and the depths of valleys, should be computed trigonometrically when the level or barometer is not used. The names of all rivers, lakes, &c., should be ascertained from the Indians or half-breeds, and information procured from them relative to those parts not explored. The approximate positions and dimensions of lakes, rivers, hills, &c., according to the Indians and others, may be made use of in constructing a map of the country, but it should be strictly mentioned, and nothing should be laid down as a fact which has not been surveyed and examined.

In addition to the topographical, geological, and general character of the region to be explored (the nature of the soil, timber, vegetation, economic materials, &c., &c., specified in the general instructions, and of which *exact* descriptions should be given) it is unnecessary to state in detail what should be

observed in the country, as everything should be noted. The field-books, of which different kinds are provided for the several methods of surveying, must be kept in such a clear manner that the notes recorded can be understood and plotted by other persons than the observer if necessary.

II.

INDIAN SUMMER.

Indian summer is a phenomenon of constant yearly occurrence and marked characteristics in the north-west. The following Table, kindly furnished from the private memoranda of Mr. James Walker, Assistant at the Provincial Observatory, establishes the fact that the hazy, warm, mellow weather we term Indian summer is a periodical phenomenon in Canada, but the cause does not appear to be quite understood. The characters of Indian summer are more decided in the north-west than in the neighbourhood of Lake Ontario. Sounds are distinctly audible at great distances; objects are difficult to discern unless close at hand; the weather is warm and oppressive, the atmosphere hazy and calm, and every object appears to wear a tranquil and drowsy aspect.

INDIAN SUMMER AT TORONTO.

1840 to 1859, inclusive.

[20 years.]

Year.	Commencement.		Termination.		No. of Days.	Remarks.
1840	1st November	- -	5th November	- -	5	And 2nd to 7th Nov. (6 days.)
1841	29th October	- -	2nd November	- -	5	
1842	28th October	- -	4th November	- -	8	
1843	23rd October	- -	25th October	- -	3	
1844	22nd October	- -	26th October	- -	5	
1845	24th October	- -	29th October	- -	6	
1846	4th November	- -	7th November	- -	4	
1847	28th October	- -	31st October	- -	4	
1848	20th November	- -	23rd November	- -	4	
1849	13th November	- -	18th November	- -	6	
1850	7th November	- -	13th November	- -	7	Well marked. Not well marked. Not well marked. Very dense fog. And 2nd to 8th Nov. (7 days.) Well marked.
1851	6th October	- -	11th October	- -	6	
1852	16th November	- -	21st November	- -	6	
1853	12th October	- -	20th October	- -	9	
1854	24th October	- -	28th October	- -	5	
1855	16th October	- -	26th October	- -	11	
1856	19th October	- -	22nd October	- -	4	
1857	5th October	- -	12th October	- -	8	
1858	18th October	- -	28th October	- -	11	
1859	2nd November	- -	8th November	- -	7	
Mean result	27th October	- -	2nd November	- -	6	J. W.

III.

I.—TABLE OF MAGNETIC VARIATIONS.

Locality.	N. Latitude.	W. Long.	Variation.	Date.
	° ' "	° ' "	° ' "	
Toronto - - -	43 39 24	75 17 33	2 06 W.	1859.
Drummond's Island (Lake Huron) -	46 00 00	84 00 00	00 00	Line of no variation, 1851.*
Fort William (Lake Superior) -	48 23 30	89 27 10	8 45 E.†	
Dog River (Foot of Dog Lake) -	- - -	- - -	7 1 E.†	
Kaministiquia (Height of Land) -	48 56 00	- - -	7 26 E.†	
Rainy Lake - - -	- - -	- - -	10 to 12 E.§	
Assiniboine River - - -	49 46 19	98 20 00	13 00 E.	June 20, 1858.
Little Souris River - - -	49 41 00	99 35 00	15 00 E.	June 25, "
Camp 117. Cape Kitchinashi, Lake Winnipeg.	53 8 00	97 28 00	15 00 E.	August 23, "
Camp 125. Point Wigwam, Lake Winnipeg.	52 10 00	97 39 00	15 00 E.	September 2, "
Camp 200. Lake Manitobah -	51 17 00	98 54 00	15 00 E.	October 23, "
Camp 69. Little Saskatchewan -	50 33 15	100 6 00	15 30 E.	August 12, "
Camp 197. Water-hen River -	51 54 00	99 55 00	16 15 E.	October 19, "
Camp 17. Red Deer's Head River -	49 1 44	100 55 00	16 53 E.	July 2, "
Camp 25. Fort Ellice -	50 23 39	101 15 00	17 30 E.	July 11, "
Camp 31. Qu'Appelle Mission -	50 49 40	103 27 00	18 00 E.	July 19, "
Camp 55. Fort Pelly -	51 47 22	101 56 00	19 30 E.	August 2, "
Camp 62. Fort à la Corne -	53 30 00	104 30 00	22 30 E.	August 7, "

\*J. W. Foster and J. D. Whitney, 1851. † Bayfield, 1824. ‡ Murray, 1846. § Thompson, 1826.



II.—MEMORANDA RELATIVE TO THE ABSOLUTE MAGNETIC DECLINATION AT TORONTO FROM 1840 TO 1859.

Month.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.
January -	-	W.	W.	° ' -	° ' -	1.26.0	1.31.5	1.32.2	1.34.5	1.38.4	1.36.5	1.39.5	° ' -	° ' -	1.50.9	° ' -	1.54.5	1.58.6	° ' -	° ' -
February -	-	1.12.0	1.16.6	-	-	1.24.4	1.29.4	1.33.1	1.35.0	1.35.2	1.37.5	1.41.4	-	-	1.45.0	-	1.55.2	1.59.1	-	-
March -	-	-	-	-	-	1.28.5	1.29.1	1.32.0	1.34.6	1.36.8	1.38.5	1.39.6	-	-	1.48.6	-	1.55.3	2.00.9	-	-
April -	-	-	-	-	-	1.29.8	1.30.0	1.33.2	1.35.6	1.35.4	1.37.5	1.40.5	-	-	1.47.3	-	1.56.1	1.59.4	-	-
May -	-	-	-	-	-	1.30.3	1.29.9	1.32.2	1.34.6	1.37.0	1.37.1	1.40.9	-	-	1.47.5	-	1.55.8	1.58.4	-	-
June -	-	-	-	-	-	1.29.2	1.28.8	1.32.3	1.35.2	1.36.1	1.38.1	1.41.0	-	-	-	-	1.55.9	1.58.7	-	-
July -	-	-	-	-	-	1.29.1	1.31.6	1.32.3	1.34.6	1.36.1	1.36.2	1.40.0	-	W.	-	W.	1.55.3	1.59.3	-	-
August -	-	-	-	-	-	1.28.6	1.30.5	1.32.7	1.36.4	1.35.7	1.39.9	1.41.7	-	1.43.8	-	1.51.3	1.55.1	2.01.0	-	-
September -	-	-	-	-	-	1.30.9	1.32.1	1.34.2	1.35.7	1.37.2	1.40.4	1.42.3	-	1.47.3	-	1.51.3	1.57.6	2.00.4	-	-
October -	-	-	-	-	-	1.22.2	1.31.7	1.34.8	1.37.3	1.37.2	1.41.2	1.41.6	-	-	-	1.53.4	1.57.0	2.01.6	-	-
November -	-	-	-	-	-	1.29.9	1.32.3	1.34.7	1.36.2	1.38.5	1.40.7	1.40.1	-	-	-	1.55.2	1.58.0	2.02.5app	-	-
December -	-	-	-	-	-	1.31.3	1.32.1	1.35.1	1.35.1	1.39.1	1.39.5	1.41.3	-	-	-	1.55.3	1.57.8	2.03.9	-	-
	-	1.14.3	1.18.9	1.23.5	1.27.2	1.29.1	1.30.8	1.33.2	1.35.4	1.36.9	1.38.6	1.40.9	1.43.4	1.45.5	1.47.9	1.53.3	1.56.1	2.00.3	2.0	2.06.0

\* The result of the observations between 31st August and 7th Sept.—Vol. i. p. 9.

The Mean Westerly Declination at Toronto in 1841, was W.  
" " " in 1857, was - 1° 14' 3  
" " " - 2 0 3  
The Mean Annual Increase on 16 years - - - 2 9  
The Westerly Declination at Toronto, August 1859, may be asserted to be W. 2° 06' 0

REMARKS AND AUTHORITY.

Extract.—“Every one of the results show that the Westerly Declination is increasing. Their difference in amount arises partly from error, introduced by variations in the direction of the line of detorsion, and partly from actual Magnetic irregularities. The mean is an annual increase of West Declination amounting to 4' 77, with a probable error of 0' 24.”—*Toronto Observations*, Vol. i. pp. 9, 10, and 11.—“*Sabine*.”

REMARKS AND AUTHORITY.

Extracts.  
“The Declinations at the Mean Epoch, July 1st, 1848, = 1° 34' 91 West.”—“*Sabine*.”  
“The mean annual increase of West Declination in the years 1845 to 1851 inclusive = + 1° 952.”—*Toronto Observations*, Vol. ii. pp. 3, 4, and 5.—“*Sabine*.”  
SCOBIE'S ALMANAC, 1848.  
“The mean variation at Toronto for the year 1846 was 1° 30' West. It increases about 3' every year.”—“*Lefroy*.”  
1849.  
“The mean variation for 1847 = 1° 36' [?] West; increasing 3' every year.”  
1850.  
“The mean variation for 1848 was 1° 34' West; increasing 2' every year.”  
1852.  
“The mean variation for 1850 was 1° 39'.”—“*Lefroy*.”

REMARKS AND AUTHORITY.

Extract.—“The annual secular change from July 1851 to April 1854 (two years and nine months), was an increase of 2' 54; and assuming the circumstances of the new series to be strictly comparable with those of the old series, the increase from April 1854 to October 1855 is at the annual rate of 3' 4.

“It seems probable, therefore, that the rate of the secular increase of West Declination at Toronto is augmenting.”—Vol. iii. page 126.—“*Sabine*.”

III.—MAGNETIC VARIATIONS at TORONTO from 1841 to 1859 inclusive.

Year.	Declination.	Annual Difference.	Year.	Declination.	Annual Difference.
	° ' "	' "		° ' "	' "
1840	- —	—	1850	- 1.38.6	+1.7
1841	- 1.14.3	—	1851	- 1.40.9	+2.3
1842	- 1.18.9	+4.6	1852	- +1.43.4*	+2.5*
1843	- 1.23.5*	+4.6*	1853	- +1.45.5*	+2.1*
1844	- 1.27.2*	+3.7*	1854	- +1.47.9*	+2.4*
1845	- 1.29.1	+1.9*	1855	- +1.53.3*	+5.4*
1846	- 1.30.8	+1.7	1856	- 1.56.1	+2.8*
1847	- 1.33.2	+2.4	1857	- 2.00.3	+4.2
1848	- 1.35.4	+2.2	1858	- +2.03.0*	+2.7*
1849	- 1.36.9	+1.5	1859	- +2.06.0*	+3.0*

Mean declination in 1841 was	-	-	-	-	1.14.3
Do. do. 1859 is	-	-	-	-	2.06.0
Increase in 18 years	-	-	-	-	51.7
Mean annual increase	-	-	-	-	+2.9

IV.

A LIST of the WATER-COLOUR DRAWINGS and PHOTOGRAPHS accompanying this REPORT.

List of Water-Colour Drawings, by W. Hind, from Sketches taken by J. Fleming, Assistant-Surveyor to the Expedition.

LAKE WINNIPEG.

- 1. *The Grindstone Point.*—Showing exposures of limestone and sandstone. A characteristic scene on the west coast.
- 2. *Deer Island.*—Showing escarpments of limestone reposing on sandstone. A characteristic scene on the west side of islands and on the west coast.
- 3. *Coast Scene near the Mouth of Red River.*—Showing the increase of land by the throwing up of sand beaches and the formation of marshes in their rear.
- 4. *The Cat Head.*—Showing the precipitous cliffs of limestone at this point and along the coast.

THE SASKATCHEWAN.

- 5. *The Grand Rapid of the Saskatchewan.*—Showing the upper and most precipitous portion of the Grand Rapid, with the perpendicular cliffs of limestone on either side.
- 6. *The Saskatchewan at Fort à la Corne.*—Showing the Honourable Hudson's Bay Company's Fort (right bank of the river,) and the Nepowewin Mission (Ch. of Eng.) on the left bank.
- 7. *Cumberland House.*—One of the principal forts of the Honourable Hudson's Bay Company, situated on Pine Island Lake, a tributary of the Saskatchewan.
- 8. *The Pas, or Cumberland Missionary Station* (Ch. of Eng.) on the Saskatchewan. On the right bank are Christ Church and the Parsonage.

LAKE MANITOBAH AND ST. MARTIN'S LAKE.

- 9. *Fairford.*—A missionary station (Ch. of Eng.) on the Partridge Crop River, a stream flowing from Lake Manitobah into St. Martin's Lake. (View, looking up the river.
- 10. *Fairford.*—Second view (looking down).
- 11. *Sugar Island, St. Martin's Lake.*—Showing its peculiar rock formation.

THE QU'APPELLE OR CALLING RIVER.

- 12. *The Valley of the Qu'Appelle at the Mission* (Ch. of Eng.)—Showing the character of the excavation, and the treeless prairie on the south bank. Dimensions of valley, 265 feet deep, 1 mile 21 chains wide.
- 13. *Qu'Appelle Lakes, Fishing Lake No. 3.*—The Qu'Appelle Lakes are 8 in number and vary from 4 to 16 miles in length, from 15 to 66 feet in depth, and from half a mile to 1½ mile in width.

THE LITTLE SOURIS, OR MOUSE RIVER.

- 14. *View of the Valley near the Blue Hills of the Souris.*—Showing the great treeless prairie extending to the Grand Coteau de Missouri.
- 15. *The partially wooded Valley of the Little Souris*—near Back-Fat Creek, an affluent from the Back-Fat Lakes.
- 16. *The Valley of the Little Souris,*—in its passage through a portion of the Blue Hills, showing the character of the excavation.

THE ASSINNIBOINE RIVER.

- 17. *View from the Half-way Bank.*—Showing the Great Wooded Valley through which the river meanders. In the distance is Pembina Mountain, with the partially wooded country intervening.
- 18. *Fort Ellice,* on Beaver Creek, a small tributary of the Assinniboine, flowing through a very deep but short valley. The fort is one of the chief provision depôts of the Hon. Hudson's Bay Company.
- 19. *Mode of preparing dried Buffalo Meat* on the prairie; Red River Carts.
- 20. *Stony Mountain.*

\* The entries marked thus \* are the nearest approximation deduced from the previous annual increase; or they are the means of a series of observations taken during the year.



*List of Photographs taken by Humphrey L. Hime.*

## THE RED RIVER.

1. View of Red River from the Stone Fort.
2. View of Red River from St. Andrew's Church, four miles above the Stone Fort.
3. Red River; Middle Settlement, eight miles below Fort Garry.
4. Freighter's Boat on the banks of Red River, seven miles below Fort Garry.
5. Bishop's Court, (the residence of the Bishop of Rupert's Land,) on the banks of Red River.

These photographs exhibit the general character of the river.

## CHURCHES OF SELKIRK SETTLEMENT.

6. Cathedral of St. Boniface (Roman Catholic) and Nunnery on the banks of Red River, opposite Fort Garry.
7. St. John's Church, two miles below Fort Garry. (Ch. of Eng.)
8. Presbyterian Church and Parsonage, seven miles below Fort Garry.
9. St. Paul's Church, Parsonage, and School House,  $8\frac{1}{2}$  miles below Fort Garry. (Ch. of Eng.)
10. St. Andrew's Church (Rapids Church), 16 miles below Fort Garry. (Ch. of Eng.)
11. St. Andrew's Parsonage.

## HOUSES AND STORES OF THE SETTLERS.

12. Residence of Chief Factor (the late Mr. Bird), Middle Settlement.
13. Residence of Mr. Bannatyne, near Fort Garry.
14. Mr. McDermot's Store, near Fort Garry.
15. Quarters of the Assinniboine and Saskatchewan Exploring Expedition, Middle Settlement.
16. Farm Houses and Windmills, Middle Settlement.

## INDIAN TENTS AND GRAVES.

17. Ojibway Tents on the banks of Red River, near the Middle Settlement.
18. Tents in the Prairie, west of the Settlement.
19. Birch Bark Tents, west bank of Red River, Middle Settlement.
20. Indian Graves, covered with split sticks.
21. Indian Graves, covered with birch bark.

## THE PRAIRIE.

22. The Prairie, on the Banks of Red River, looking south.
23. The Prairie, looking west.

## FORTS AND STORES OF THE HONOURABLE HUDSON'S BAY COMPANY.

24. Fort Garry, at the confluence of Red River and the Assinniboine.
25. Hon. Hudson's Bay Company's Officers' Quarters, Lower or Stofe Fort.
26. Fur Store, interior of Lower or Stone Fort.

## NATIVE RACES.

27. John McKay, a Cree Half-breed.
28. Letitia, a Cree Half-breed.
29. Susan, a Swampy-Cree Half-breed.
30. Wigwam. An Ojibway Half-breed, Lake Superior.
31. An Ojibway Squaw, with Papoose.

32. Red River Freighter's Boat.
33. Dog Carioles; Expedition returning to Crow Wing, by the winter road.

*Copies of these Photographs are now in course of publication, and may be procured from J. Hogarth, 5, Haymarket, London. Price, Two Guineas the set.*

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## NOTE.

*It being desirable that the publication of this Report in its present form should not be delayed, Chapters on "Missionary Enterprise in the North West," "Winter Journey to St. Paul," "The Position, Character and Influence of the Fur Trade," "The Clay-Ironstone Deposits in the Basin of Lake Winnipeg," together with analyses of minerals, a description of a Fish from the Qu'Appelle Lakes, and other notices of different subjects are necessarily deferred for the present. They will make a short Supplementary Report, or appear in a separate and independent form, as may hereafter be determined.*



## EXPLANATION OF PLATE I.

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ORTHOCERAS SIMPSONI. (Page 199.)

*Figure 1.*—A fragment of the siphuncle of this species.

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ANOMIA FLEMINGI. (Page 196.)

*Figures 2 and 3.*—Two different specimens of this species. The fine concentric lines represent shading.

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INOCERAMUS CANADENSIS. (Page 196.)

*Figure 4.*—Left valve.

*Figure 5.*—Right valve. The finer concentric lines represent shading. The small figure  $\times 4$  shows the fine striæ seen on the outer fibrous layer of the shell magnified four times.

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AVICULA LINGUEFORMIS. (Page 196.)

*Figure 6.*—An imperfect specimen of this species. The lines represent shading.

---

AVICULA NEBRASCANA.

*Figure 7.*—Two specimens of this species.

---

LEDA HINDI. (Page 196.)

*Figure 8.*—Natural size.

„ 9.—The same enlarged.

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For Figure 10, see Mr. Meek's remarks, Plants, No. 2, page 195.

PLATE I.



FIG. 1.



FIG. 8.

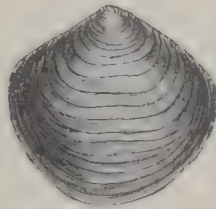


FIG. 2.

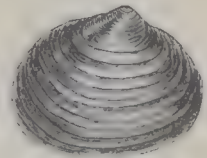


FIG. 3.

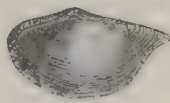


FIG. 9.

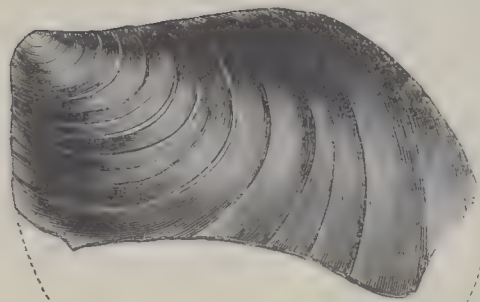


FIG. 4.



FIG. 6.

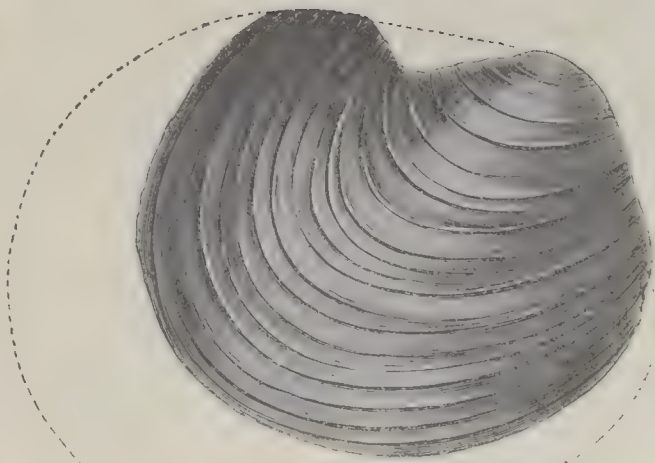


FIG. 5.

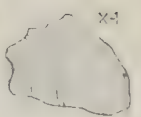


FIG. 7.

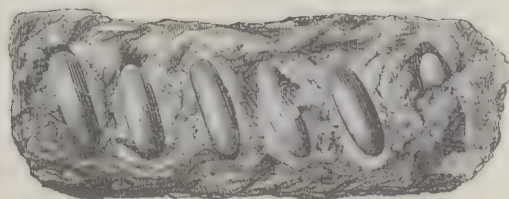


FIG. 10.



## EXPLANATION OF PLATE II.

## AMMONITES BARNSTONI. (Page 197.)

*Figure 1.*—Side view, showing the deep umbilicus. | *Figure 2.*—Front view of same specimen.  
*Figure 3.*—Diagram of one of the septa.

## AMMONITES BILLINGSI. (Page 198.)

*Figure 4.*—Side view. | *Figure 5.*—One of the septa enlarged.  
*Figure 6.*—Front view of same specimen.

SCAPHITES NODOSUS [?] *Var.* (Page 198.)

*Figure 7.*—Side view.  
*Figure 8.*—Front view. The fine lines represent shading.

The specimen figured shows the remains of two rows of tubercles on the dorsum—one on each side.  
 They are much worn, and have been unfortunately omitted altogether by the artist.

## NAUTILUS DEKAYI. (Page 198.)

*Figure 9.*—Front view. | *Figure 10.*—Side view.

PLATE II.



FIG. 1.



FIG. 2.

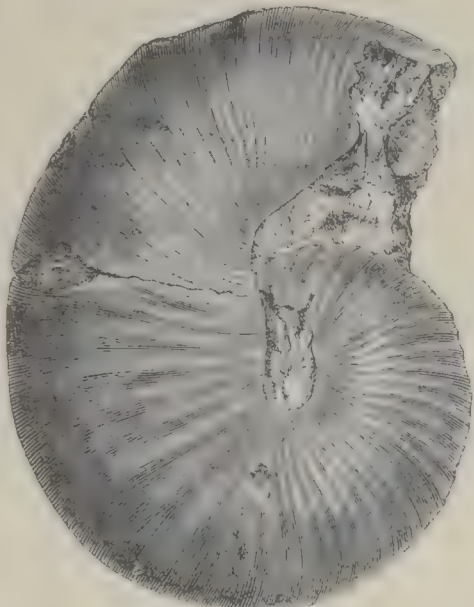


FIG. 7.

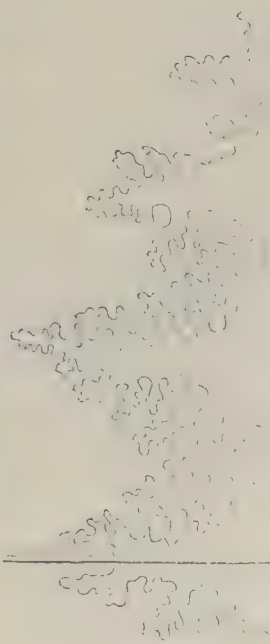


FIG. 3.

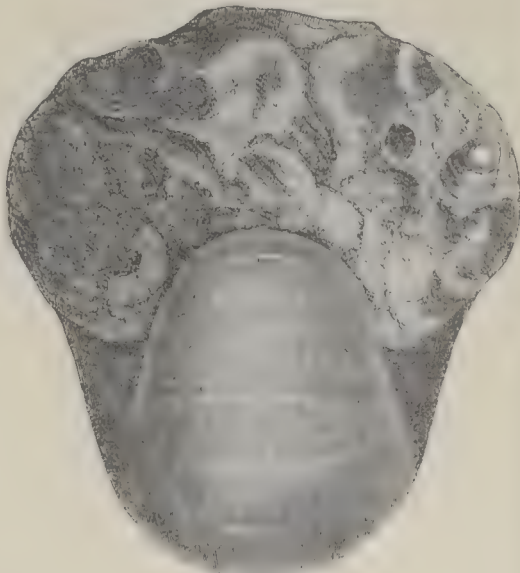


FIG. 9.



FIG. 8.



FIG. 4.

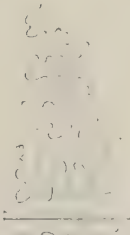


FIG. 5.



FIG. 6.



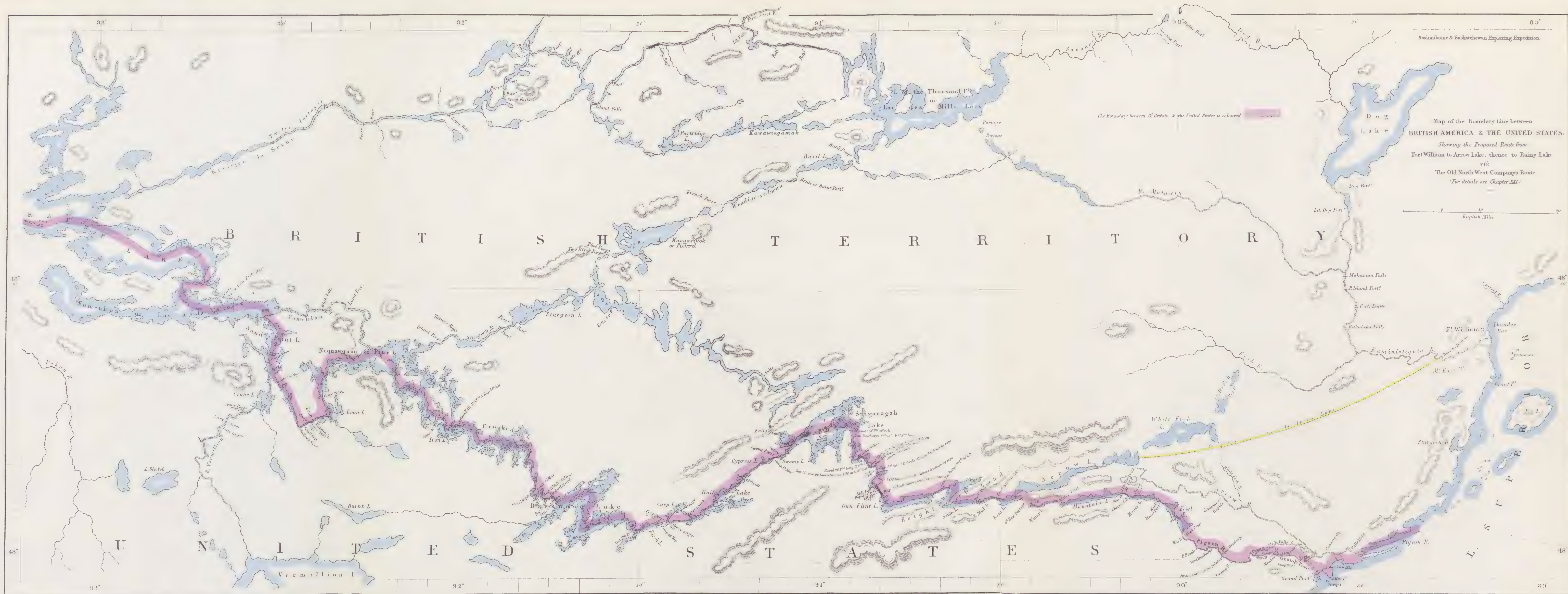
FIG. 10.



L O N D O N :

Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty.  
For Her Majesty's Stationery Office.







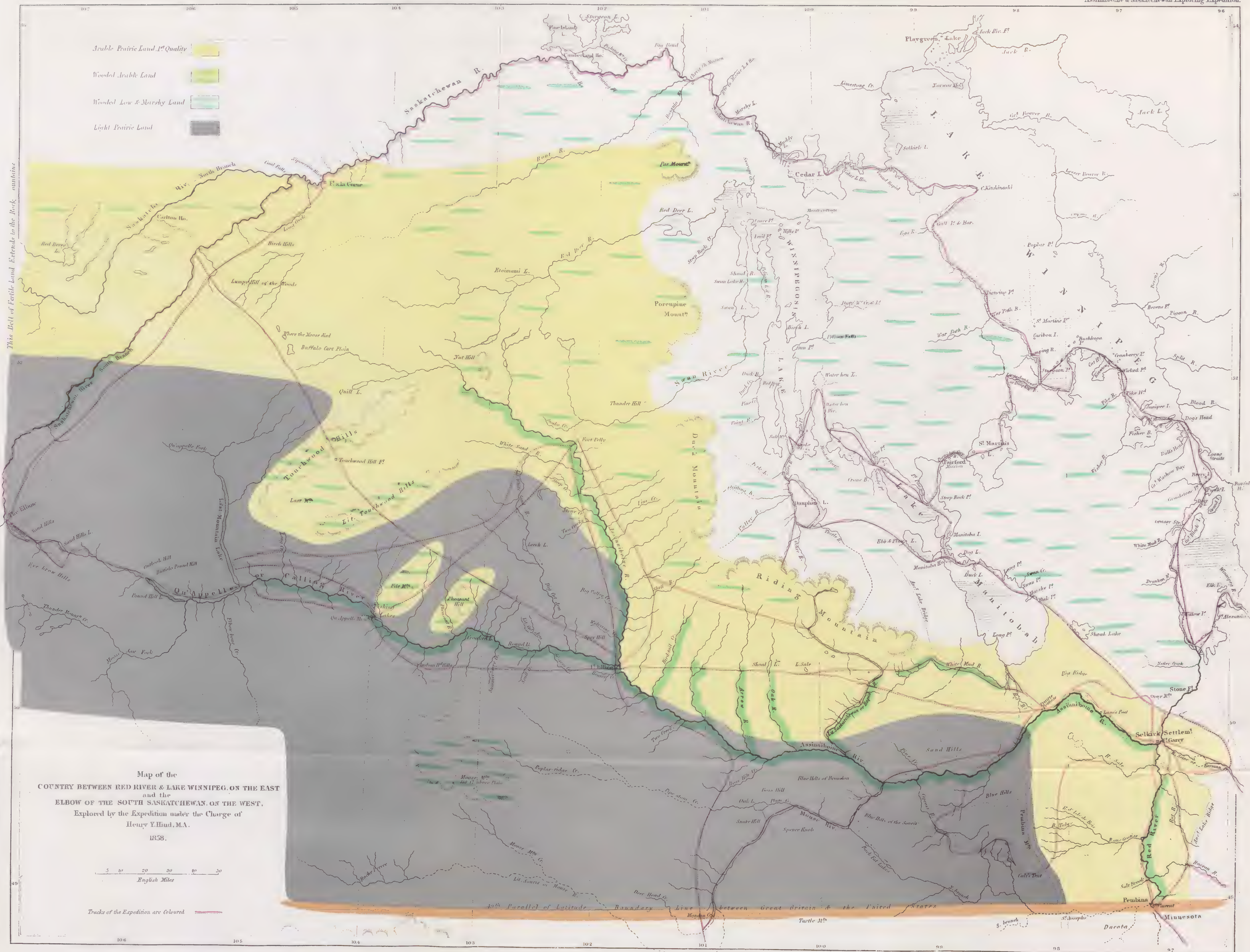
This Belt of Fertile Land Extends to the Rock, contains

- Arable Prairie Land 1<sup>st</sup> Quality
- Wooded Arable Land
- Wooded Low & Marshy Land
- Light Prairie Land

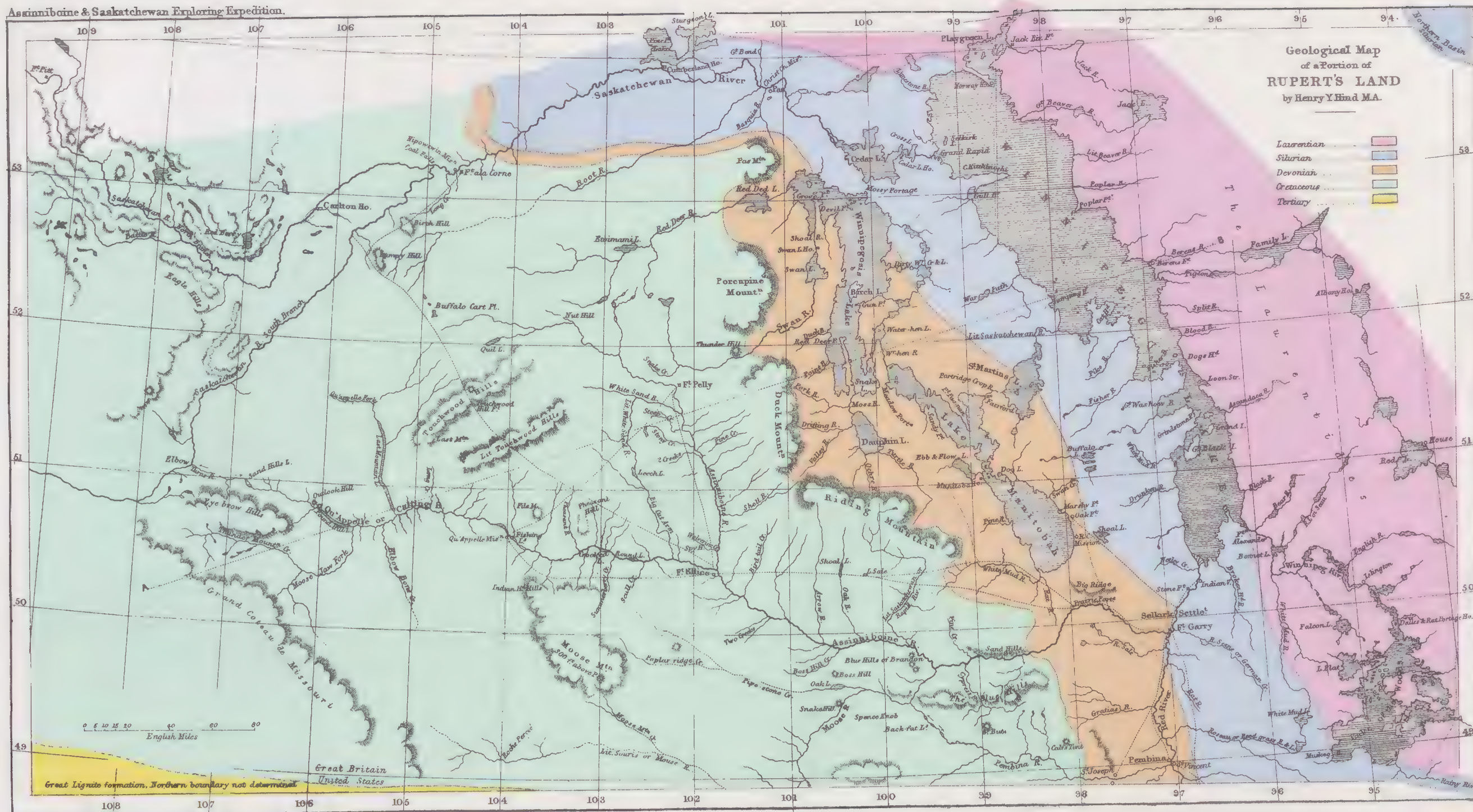
Map of the  
COUNTRY BETWEEN RED RIVER & LAKE WINNIPEG, ON THE EAST  
and the  
ELBOW OF THE SOUTH SASKATCHEWAN, ON THE WEST,  
Explored by the Expedition under the Charge of  
Henry Y. Hind, M.A.  
1858.

5 10 20 30 40 50  
English Miles

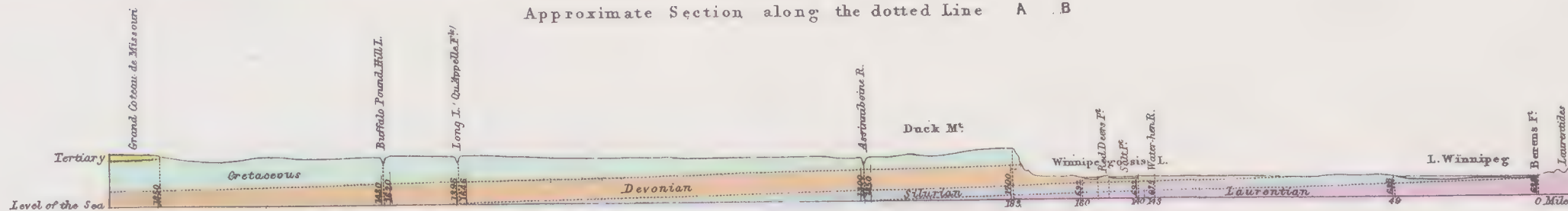
Trucks of the Expedition are Coloured



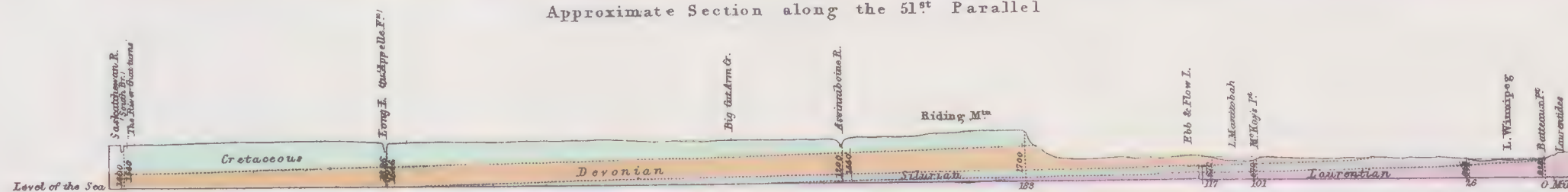




Approximate Section along the dotted Line A B

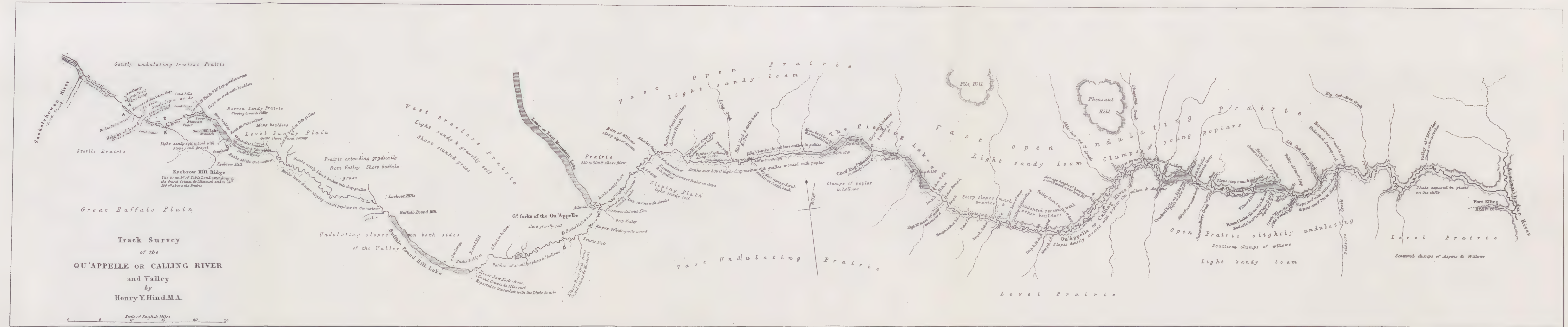
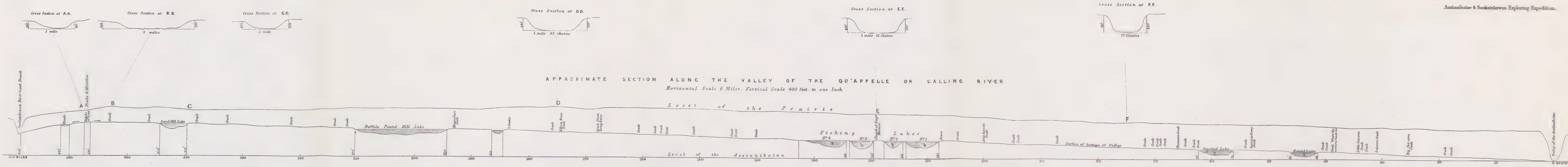


Approximate Section along the 51<sup>st</sup> Parallel



Scales  
Horizontal same as Map  
Vertical 5000<sup>ft</sup> to an Inch







ECCLESIASTICAL ESTABLISHMENT  
(BRITISH NORTH AMERICA).

RETURN to an Address of the Honourable The House of Commons,  
dated 20 August 1860;—for,

- “ RETURNS of the Names of the BISHOPS, ARCHDEACONS, RECTORS, MINISTERS, and CLERGY on the ECCLESIASTICAL ESTABLISHMENT of the BRITISH NORTH AMERICAN PROVINCES paid out of the REVENUES of this Country, and the Dates of their Appointments respectively, and the Places of their Residence and Service, for the last Five Years ; ”
- “ Of the Names of the FOREIGN MISSIONARIES employed in said Provinces during the last Ten Years, and paid in like manner, the respective Dates of their Appointments, and Time and Places of Services, and by whom Appointed, and on what Terms and for what Time ; ”
- “ Of the Date of any Grant of PENSION to the President of King’s College, the Name of the Person now in receipt thereof, and when first paid to him : ”
- “ And, of the Names of the Persons in receipt thereof, for the last Ten Years.”

Colonial Office, }  
24 August 1860. }

C. FORTESCUE.

1.—CANADA.

OFFICE.	NAME.	Date of Appointment.	Residence.
Bishop of Quebec - - - - -	Right Rev. J. Mountain, D. D. -	1836	Quebec.
Archdeacon of Quebec - - - - -		1821	
Rector of Quebec - - - - -		1823	
Rector of Montreal - - - - -	Rev. John Bethune, D. D. - -	1818	Montreal.
Minister of Trinity Chapel, Quebec - -	Rev. E. W. Sewell - - - -	1824	Quebec.
Rector of Three Rivers - - - - -	Rev. T. S. Wood - - - - -	1829	Durham.
Rector of St. Armand - - - - -	Rev. Jas. Reid, D. D. - - - -	1817	St. Armand.
Rector of St. George and St. Thomas - -	Rev. Micajah Townsend, D. D. -	1815	Clarenceville.
Presbyterian Minister, Argenteuil - - -	—	—	—

2.—NOVA SCOTIA.

Archdeacon - - - - -	The Venerable Robert Willis, D. D. -	1825	Halifax.
	Rev. John Campbell - - - - -	1828	Granville.
	Rev. James C. Cochran - - - - -	1824	Halifax.
	Rev. Charles Elliot - - - - -	1829	Pictou.
	Rev. Archibald Gray - - - - -	1829	Digby.
	Rev. John T. T. Moody - - - - -	1827	Yarmouth.
Rectors, Ministers, and Clergy - - - -	Rev. Henry N. Owen - - - - -	1832	Lunenburg.
	Rev. James Robertson - - - - -	1831	Wilmot.
	Rev. James Shreve - - - - -	1822	Dartmouth.
	Rev. John Storrs - - - - -	1829	Cornwallis.
	Rev. Robert F. Uniacke - - - - -	1825	Halifax.
	Rev. Thomas H. White - - - - -	1829	Shelburne.
	Rev. William B. King - - - - -	1825	Parrsboro’.

[The foregoing are Missionaries of the Society for the Propagation of the Gospel in Foreign Parts, paid by the Imperial Government during, but limited to the lives of those Missionaries. Twenty-two additional are paid by the society.]

Presbyterian Minister - - - - -	Rev. John Scott - - - - -	1826	Halifax.
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3.—NEWFOUNDLAND.

Bishop of Newfoundland - - - - -	Right Rev. Edward Feild, D. D. -	1844	Newfoundland.
----------------------------------	----------------------------------	------	---------------

PENSION to the President of King’s College, granted in 1835, to Reverend Charles Porter, D. D., who still enjoys it  
Payment of the Pension commenced from 1 April 1835.



ECCLESIASTICAL ESTABLISHMENT  
(BRITISH NORTH AMERICA).

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RETURNS of the Names of the BISHOPS, ARCH-  
DEACONS, RECTORS, MINISTERS, and CLERGY on the  
ECCLESIASTICAL ESTABLISHMENT of the BRITISH NORTH  
AMERICAN PROVINCES paid out of the REVENUES of  
this Country, and the Dates of their Appointments  
respectively, and the Places of their Residence and  
Service, for the last Five Years; &c.

(*Mr. Hadfield.*)

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*Ordered, by The House of Commons, to be Printed,*  
*25 August 1860.*

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INDIAN DEPARTMENT (CANADA).

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RETURN to an Address of the Honourable The House of Commons,  
dated 20 August 1860;—for,

“COPIES or EXTRACTS of CORRESPONDENCE between the Secretary of  
State for the Colonies and the Governor General of *Canada* respecting  
Alterations in the Organization of the INDIAN DEPARTMENT in CANADA  
(in continuation of Parliamentary Paper, No. 247, of Session 1856).”

Colonial Office, }  
24 August 1860. }

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C. FORTESCUE.

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(*Mr. Blake.*)

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*Ordered, by The House of Commons, to be Printed,*  
*25 August 1860.*

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DESPATCHES FROM THE GOVERNOR GENERAL	-	-	-	p. 1
DESPATCHES FROM THE SECRETARY OF STATE	-	-	-	p. 39

## SCHEDULE.

Number in Series.	Number and Date.	SUBJECT.	Page.
DESPATCHES FROM THE GOVERNOR GENERAL.			
1	22 July 1856 - No. 112.	Reporting the Appointment of a Commission of Inquiry into the Affairs of the Indians - - -	1
2	4 November 1856 No. 152.	Enclosing a Memorandum by the Commissioners appointed to inquire into the Affairs of the Indians, on the Moravian Reserves at New Fairfield - -	2
3	11 December 1856 No. 162.	Enclosing the Annual Report of the Superintendent General of Indian Affairs - - - -	3
4	20 December 1856 No. 171.	Transmitting the Indian Estimates for the year commencing 1st April 1857, showing a Reduction of 1,172 l. 2 s. as compared with the Estimate of the previous year - - - - -	9
5	4 December 1857 No. 104.	Transmitting a Letter from the Chief Superintendent of Indian Affairs, reporting the substance of an Address from a Deputation of the principal Chiefs of the Six Nations - - - - -	10
6	2 January 1858 - No. 1.	The Indian Estimates for the year commencing 1st April 1858 enclosed, together with the Annual Report of the Superintendent General - - - - -	11
7	7 April 1858 - No. 41.	Enclosing a Memorandum by the Superintendent General of Indian Affairs, respecting Presents to the Indians - - - - -	20
8	12 May 1858 - No. 56.	Stating that the Commissioners appointed to inquire into the Affairs of the Indians had furnished their Report, and enclosing a Memorandum thereon, which he had submitted to his Council - - -	21
9	5 June 1858 - No. 73.	Enclosing a Memorandum by the Superintendent General on the Subject of Indian Funds, with Remarks - - - - -	23
10	17 January 1859 - No. 4.	Enclosing the Indian Estimates for the year commencing 1st April 1859 to 31st March 1860, together with a Memorandum by the Superintendent General relative to the Reductions made in the item of salaries	25
11	18 January 1859 - No. 6.	Enclosing the Annual Report of the Superintendent General - - - - -	26
12	30 April 1860 No. 36.	Transfer of the Control of Indian Affairs from the Imperial to the Canadian Government - - -	30
13	9 May 1860 No. 42.	Enclosing a Petition to the Queen, from the Indian Tribes of Lakes Huron and Simcoe, together with the Report of the Superintendent General thereon - - - - -	30
14	18 May 1860 No. 48.	Relative to the Transfer of the Indian Department to the Provincial Government - - - - -	37
15	19 May 1860 No. 49.	Enclosing "An Act respecting the Management of the Indian Lands and Property" - - - - -	37



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1	22 August 1856 - No. 130.	Acknowledging the Governor's Despatch, reporting the Appointment of a Commission to inquire into the Affairs of the Indians - - - - -	39
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6	22 January 1858 - No. 11.	Stating that the Indian Estimates for the year 1858 had been proposed at 3,388 £. - - - - -	41
7	15 March 1858 - No. 10.	Acknowledging Governor's Despatch, No. 1, of 2 January, and enclosing Letter from the Lords Commissioners of the Treasury, relative to the Reduction in the Estimates of the Indian Department - -	41
8	1 May 1858 - No. 38.	Acknowledging Governor's Despatch, No. 41, of 7 April 1858, relative to the Allowance for Presents to the Indians - - - - -	43
9	14 June 1858 - No. 8.	Acknowledging Governor's Despatch, No. 56, of 12 May 1858, with the Report of the Commissioners of Inquiry, and remarking thereon - - -	43
10	28 June 1858 No. 14.	Acknowledging Governor's Despatch, No. 73, of 5 June, with a Memorandum by the Superintendent General of Indian Affairs, on the effect which the Reduction of the Parliamentary Grant will produce on some of the more destitute Indians - - -	44
11	11 February 1859 No. 26.	Relative to the Indian Estimates for the year ending 31st March 1860 - - - - -	44
12	11 February 1859 No. 27.	Acknowledging Governor's Despatch, No. 6, of 18 January, transmitting the Report of the Superintendent General of Indian Affairs - - - -	45
13	3 March 1860 - No. 18.	Stating the Amount that will be submitted to Parliament for Pensions and Presents to the Indians -	45
14	16 June 1860 No. 63.	Acknowledging Governor's Despatch, No. 42, of 9 May, enclosing a Petition to the Queen from the Indian Tribes of Lakes Huron and Simcoe - -	45
15	14 July 1860 No. 85.	Transmitting Order in Council specially confirming the "Act respecting the Management of the Indian Lands and Property" - - - - -	46

COPIES or EXTRACTS of CORRESPONDENCE between the Secretary of State for the Colonies and the Governor General of *Canada* respecting Alterations in the Organization of the INDIAN DEPARTMENT in *Canada*.

## Despatches from the Governor General.

— No. 1. —

(No. 112.)

COPY of a DESPATCH from Governor General Sir *Edmund Head*, Bart., to the Right Honourable *H. Labouchere*, M. P.

Government House, Toronto, 22 July, 1856.

(Received, 12 August 1856.)

Sir,

WITH reference to your Despatch of the 21st February, No. 42,\* respecting the reports of Mr. Oliphant and Lord Bury on the state of the Indians in this Province, I have the honour to inform you that I have appointed Messrs. Worthington and Talfourd to be Commissioners, in conjunction with the Superintendent General of Indian Affairs, for the objects specified in the following Minute of Council:—

“Copy of a Report of a Committee of the Honourable the Executive Council, dated 11th July 1856, approved by his Excellency the Governor General in Council on the 12th of the same month.

“On a memorandum dated 11th inst., from the Honourable the Attorney General for Upper Canada, suggesting the expediency of the issue of a commission under the statute 9 Vict. c. 38, for the purpose of inquiring and reporting upon the following points:—

“1st. As to the best means of securing the future progress and civilization of the Indian tribes in Canada.

“2d. As to the best mode of managing the Indian property, so as to secure its full benefit to the Indians without impeding the settlement of the country.

“The Committee recommend that a Commission issue for the purpose above set forth, and that the expense attending the same be defrayed out of the sinking fund in the Indian department.”

The “sinking fund” of which mention is made in this Minute relates to a per-centage which has since the 1st April last been, by my direction, deducted from the proceeds of the sales of Indian lands. The greater part of this it is intended to invest, and allow to accumulate for the purpose of ultimately forming a fund to meet the expense of management of the Indian property, and the incidental expenses connected therewith.

I have, &c.  
(signed) *Edmund Head*.

No. 1.

Governor General  
Sir E. Head, Bart.,  
to the Right Hon.  
H. Labouchere,  
M. P.  
22 July 1856.

\* *Vide* House of  
Commons' Paper,  
No. 247 of 1856,  
p. 39.



— No. 2. —

No. 2.

Governor General  
Sir E. Head, Bart.,  
to the Right Hon.  
H. Labouchere,

M. P.

4 November 1856.

(No. 152.)

COPY of a DESPATCH from Governor General Sir *Edmund Head*, Bart.,  
to the Right Honourable *H. Labouchere*, M. P.

Government House, Toronto, C. W., 4 November, 1856.

(Received, 24 November 1856.)

(Answered, No. 181, 8 December 1856, page 39.)

Sir,

I HAVE the honour to enclose a copy of a report made to me by the Commissioners appointed in pursuance of the Order in Council, of which a copy was contained in my despatch of the 22d July last (No. 112.)\*

This report relates to the Moravian Reserve, as it is called, in Western Canada, a tract of land situated in a country which is rapidly advancing in population and wealth, but which is thus unfortunately retained in a state of wilderness, to the loss and injury of the Indians themselves as well as to that of the province.

In my opinion, the Moravians have no right or title of any kind to the land in question. They were originally nothing but trustees, and their position and title as trustees was never completed. The fee of the land is still in the Crown, and if the Crown applies the property for the benefit of the Indians—the real *cestui que trust*—the Moravians can have no just cause of complaint.

I recommend, therefore, that the advice of the Commissioners be acted upon, and that the lands be brought into the market with a view of applying the proceeds to the benefit of the Indians interested therein.

The forcible retention of large uncultivated tracts of land in a country rapidly settling and increasing in value, is detrimental to the material interests of the Indians themselves, and must inevitably provoke remonstrances, if not Legislative action, on the part of the white population whose progress it impedes.

If permission be granted to deal with the lands in question, I shall endeavour to consult the wishes of the Indians themselves, and obtain a regular surrender of the land. I confess, however, it appears to me that the Crown holding the fee for the benefit of them in a state of pupillage, might at all events properly and conscientiously act for the best on behalf of its wards according to its own discretion.

I have, &amp;c.

(signed) *Edmund Head*.

## Enclosure in No. 2.

## MEMORANDUM on the Indian Reserves at New Fairfield, or Moravian Town.

Encl. in No. 2.

THE tract of land occupied by the Lower Delawares in the valley of the Thames, is peculiar in the tenure by which it is held. In 1798 the soil, by an order of the Executive Council of Upper Canada, was vested in certain gentlemen residing in England, belonging to the Moravian Brethren's Society, for the use of their Indian converts.

The Surveyor General was directed to have a survey made of the tract, in order that a patent might issue in accordance with the above trust.

The patent was not made out; but, though their legal title was thus incomplete, the rights of the trustees were respected by the Government, except on two occasions, in 1819 and 1836. In the latter year, Sir F. B. Head obtained from the Indians themselves the cession of a large portion of the reserve, in consideration of a small annuity.

This elicited such strong remonstrances from the Moravian Society, that Lord Glenelg in his despatch, No. 130, of the 22d August 1838, directed that, "except on the express authority of Her Majesty's Government, no future negotiations should be set on foot respecting this land otherwise than through the Moravian Mission."

The decision of the Secretary of State would seem in a great measure to have been arrived at in consequence of a representation made to him by the Rev. Mr. Latrobe, dated 29th September 1837.

The Commissioners respectfully submit that this representation, however consistent with the facts at the time, is by no means borne out by the present condition of things.

The majority of the Indians on the reserve now belong to the Methodist persuasion, and are at complete variance with the resident Moravian missionary. The village does not now contain two-thirds of the number stated by Mr. Latrobe, most of the seceders having settled in other parts of the reserve. Instead of 600, there are now only about 350 acres in good cultivation by the Indians, with the exception of the land personally occupied by the missionary. No trades are taught to them, nor is there any school permanently open in the reserve, situated as the tract is, more than 60 miles from the visiting superintendent, it

is impossible to exercise much control over it; and there is no person in the neighbourhood who could be properly appointed a special Commissioner under the Act 2 Vict. c. 15.

Depredations are carried on to a considerable extent, and only last winter, timber, to a considerable amount, was taken from the reserve under a sale or bargain in property obtained from the resident missionary and some of the chiefs; there was also a large quantity plundered from the rear of the reserve.

The band is as squalid and wretched as any that have come under the notice of the Commissioners, and though occupying upwards of 25,000 acres in one of the finest districts of Western Canada, is reduced by vice, dissipation, and idleness to great misery.

The Commissioners further are convinced that owing to the religious feuds in the tribe, any attempt to negotiate through the resident missionary would fail, while the abortive attempt would rouse the suspicions and jealousy of the Indians.

They therefore respectfully suggest that the consent of the Imperial Government should be obtained in order that a surrender of such portion of this reserve not required by the Indians for cultivation, may be tried for by the Indian Department communicating directly with the tribe, so that the land now much in demand and which would realize large prices may be sold for the benefit of the present occupants with their descendants, and some more efficient measures taken for their civilization and improvement.

(signed) *R. T. Pennefather.*  
*Froome Talfourd.*  
*Tho. Worthington.*

— No. 3. —

(No. 162.)

COPY of a DESPATCH from Governor General Sir *Edmund Head*, Bart.,  
to the Right Honourable *H. Labouchere*, M. P.

Government House, Toronto, 11 December, 1856.

(Received, 29 December 1856.)

Sir,

(Answered, No. 6, 2 January 1857, page 39.)

I HAVE the honour to enclose the annual report made to me by the Superintendent General of Indian Affairs of the tribes under his charge.

Annexed to this document are the returns called for in your despatch of 21st February last, No. 42,\* of Indians enjoying pensions from the Imperial Government, and of those aged persons who are recommended as fit objects for the bounty of a blanket annually in lieu of the presents which they have hitherto received.

I have, &c.  
(signed) *Edmund Head.*

Enclosure in No. 3.

Indian Department, Toronto, 24 November 1856.

To his Excellency Sir *Edmund W. Head*, Bart., Governor General of British  
North America, &c. &c. &c.

May it please your Excellency,

I HAVE the honour to submit to your Excellency the annual report on the state of Indian affairs in Canada.

In preparing this document, I have met with difficulties arising from the short period during which I have been connected with the department, and the consequent meagerness of much of the information which I have acquired from personal acquaintance therewith. The limited time also which I have been able to devote to travelling among the various tribes has contributed to this result.

Until the Commissioners now inquiring into the state of the native tribes shall have terminated their sittings and sent in their report, I feel some hesitation in entering upon the general topics which have more particularly engaged their attention. I shall, therefore, pending these deliberations, confine myself almost entirely to such statistical and other details, as will enable your Excellency to judge of the present position of the Indians relatively to that which they held last year.

The chief subjects now under the consideration of the Commissioners may briefly be set forth as follows:

The management of the Indian lands in such a manner as to secure to the present possessors and their descendants the full benefit of such lands, without allowing them to be a check or hindrance to the settlement of the country. The demand for land on the part of the immigrants to this province is so constant and so urgent, as to render it sooner or later difficult,

No. 3.

Governor General  
Sir E. Head, Bart.,  
to the Right Hon.  
H. Labouchere,  
M. P.  
11 Dec. 1856.

• Vide House of  
Commons Paper,  
No. 247, of 1856,  
page 39.

Encl. in No. 3.

Indian Commission.



difficult, even if it were politic, to withstand the pressure, and persist in locking up large tracts of some of the most fertile land in the colony.

At the same time the present anomalous position of the Indians, at once labouring under the disabilities imposed by law upon minors, and enjoying some of the territorial privileges of independent sovereigns, involve any measure of this kind in difficulty, which it will be the province of the Commissioners to solve.

In accordance with the wishes of the Imperial Government, they will endeavour to devise some scheme whereby the expenses of the Indian department, and of the management of their territory, may be defrayed from the funds arising therefrom. They will consider how far it may be practicable to improve the present school system. All the Indians of Upper Canada who possess annuities, with the exception of the Mohawks of the Bay of Quinté, at present tax themselves to the extent of 25 per cent. on their annuities for the support of the industrial schools, and in addition, they all defray the expense of local schools for each tribe.

In return for this large outlay they receive but small benefit. Even at the central establishment, apart from religious training, the instruction merely comprises reading, writing, arithmetic and the elements of geography. The questions before the Commissioners will be, whether it may be possible to diminish the cost of their education, or for the same money to afford one more commensurate with the outlay.

It will also rest with them to recommend what changes, if any, it may in their opinion be advisable to make in the social and political position of the Indians as members of the Canadian community.

Census.

It is difficult in the present careless way in which the census of the Indians is annually taken, to determine whether they are really decreasing or not. The computation has been, until last year, made solely with a view to the adjustment of the presents, and no examination has for the most part been hitherto made, whether the variation in the annual strength of a tribe arises from migration of some of its members, or from a difference in the relation of births to deaths; but the result of the inquiries I have made, and of my researches into the records of the office, tend to show that the resident and Christianized tribes are not decreasing.

The western district is the only one in which the census has been taken in such a manner as to show this distinction in the causes of fluctuation. The returns from that section go to prove that the decrease from mortality is, on the average, scarcely appreciable, while in some bands the births have exceeded the number of deaths.

The following table shows the numbers of the settled Indians in Western Canada in the year 1856, with the amount of their income:—

	Number.	Revenue from Land.			Annuities.		
		£.	s.	d.	£.	s.	d.
Six Nations (A.) - - - - -	2,330	8,326	5	4	-	none.	
Mohawks, Bay of Quinté - - - - -	550	594	10	-	450	-	-
Saugeen and Owen Sound (B.) - - - - -	520	42	-	-	1,250	-	-
Chippewas of Lakes Huron and Simcoe - - - - -	639	269	-	-	1,200	-	-
Chippewas of Christian Island - - - - -	45	} - Included in the foregoing.					
Sandy Island - - - - -	127						
Mississagas of Alnwick - - - - -	224	231	10	-	642	-	-
Mississagas of Rice, Mud and Skugog Lakes - - - - -	310	-	none	-	740	-	-
Chippewas of Sarnia - - - - -	559	279	-	-	1,100	-	-
Chippewas of Walpole Island - - - - -	824	-	none	-	} divided between these two bands.		
Chippewas of Thames and Munsee Indians - - - - -	620	196	-	-	600	-	-
Moravian Delawares - - - - -	255	-	none	-	150	-	-
Wyandotts of Anderdon and Chippewas of Point Pelée (C.) - - - - -	368	219	16	-	-	none.	
Oneidas of the Thames - - - - -	519	-	none	-	-	none.	

The Munsees have no revenue of any sort.

Progress of civilization among the Indians.

(A.) In addition to the above, there is about 12,000 l. in hand ready for investment for the Six Nations.

(B.) About 20,000 l. additional is about to be invested for the Saugeen and Owen Sound Indians.

(C.) The Wyandotts now derive 615 l. yearly, in addition to this sum, from the rent of their quarries. The Chippewas do not share the revenues of the Wyandotts.

The education and civilization of these people, I regret to say, seem to progress but very slowly. Their apathy, and their unsettled habits, render them, for the most part, averse from continuous application of any sort. Nor do I see much hope of permanent improvement unless by the reduction of the size of their reserves, a system be adopted of locating them in fixed places of residence like other settlers. By some such means they may be more carefully superintended,

superintended, and the children have fewer inducements to wander, as they now do, with their parents.

In parts of the country, as about Port Sarnia, white labour is so scarce, that the Indians can readily find employment at the saw mills and at other work, at one dollar a day and their board, throughout the year. At particular seasons, such as harvest time, they can earn much more. If a man has a team he can make about 12 s. 6 d. a day.

Demand for labour influences the position of the Indian.

The immediate remuneration of their services under this system has an irresistible charm for the thriftless Indian, when contrasted with the patient drudgery required in farm work, and the interval which must elapse between seed time and harvest.

This, without doubt, is one of the external causes which have militated against the extension of their clearings; and I have little doubt that the apparent retrogression in the agricultural condition of some of the Indians, may be partly accounted for in this way.

The loyal spirit by which the Indians have always been actuated, and which was so strikingly evinced by their unsolicited contributions to the Patriotic Fund, remains unchilled. The Six Nations have shown their readiness to be enrolled as a militia corps, to aid in the defence of the province, an example which would, I doubt not, be followed by the tribes in the other parts of the country if their services were required.

Militia corps.

I have thought it inadvisable, pending the decision of the Commissioners, to suggest any important change in the matter of education.

Normal schools.

The two normal schools are open; that at Mount Elgin has been enlarged by the addition of a wing containing a new dormitory, a dining-room, and other offices.

There were in attendance at my visit, 25 boys and 26 girls; a larger number than can, I fear, be maintained with a due regard to their health, as the dormitories are very much crowded, and the arrangements for ventilation are bad.

The children seemed well and contented, and their progress in learning was satisfactory. Upon the whole I was much pleased by what I saw, but parts of the house were not so clean as they should be, and some repairs are wanting to the building.

The Reverend Mr. Musgrove, resident missionary in charge, is anxious to introduce handicraft trades as a means of eventually reducing the current expenses of the establishment, and of giving employment to the boys, in addition to their work upon the farm.

The school at Alnwick, which was closed last year on account of fever breaking out in the house, has been re-opened under the charge of the Reverend Mr. Hurlburt, with 49 scholars. I have not visited this establishment, but the account given to me by Mr. Talfourd and Mr. Worthington lead me to form strong hopes of the success of the school under its present management.

The arrangement by which these institutions were made subject to the control of the Methodist Conference has expired, and it will therefore be a good opportunity for considering whether any modification of such arrangement can be agreed upon, which will lessen the expenditure now incurred.

The average amount learned by the children at these schools is, I apprehend, small; but there are some who become qualified to take their places among the white population.

One of the youths educated at Mount Elgin, is now giving great satisfaction, both to his own people and the resident missionary, as schoolmaster at Walpole Island.

Indian sales.

The general prosperity of the country has not been without its advantage to the Indians. The rise in the value of landed property has extended itself to the sales of their lands in every part of the country, but nowhere in a more marked manner than in the territory lately ceded by the Chippewas of Saugeen and Owen's Sound.

The first sale of the Indian lands in the Saugeen Peninsula took place this autumn, after a delay of nearly 12 months, caused principally by the dilatoriness of the person entrusted with the preliminary survey.

Saugeen auction.

The two southern townships, comprising about 144,000 acres, were put up to auction, and nearly all disposed of at very high prices: it may not be amiss to exhibit, in a brief form, the run of prices obtained at this sale.

The bids varied for farm lots, from 84½ dollars an acre to 175, the last being the upset price for some of the inferior land.

For park lots (i. e. those of upwards of one acre in the immediate vicinity of the town plots), sums varying from 98 l. currency=£ 392 per acre, to 5 l. were offered; while for the town lots, purchasers were found who were willing to give 150 l. or £ 600 for half an acre, being at the rate of 300 l.=£ 1,200 per acre.

The result of the sale may be summed up as follows:—

					Estimated Value.	Sum realized.
					£.	£.
Acres put up to auction	-	-	-	-	144,000	78,476
Acres unsold, not being bid for	-	-	-	-	35,000	16,397
Acres, sold	-	-	-	-	109,000	62,079
						119,332

From this latter sum must be deducted about 4,000 l., which has not been paid up by those to whom the lots were knocked down, and we must expect that there will be some further



further defaulters when the subsequent instalments become due; in this latter case, however, the amount already deposited will be, by the terms of the sale, forfeited. When nothing has been paid, should the lots subsequently be disposed of for a smaller sum, the original bidder will be held responsible for any loss arising to the Indians from his default.

If at any future period the land now occupied by the Newash Indians should be surrendered and sold, the lots withdrawn from the late auction as being unsaleable, will probably realize the value at which they were estimated, if not an advance thereupon.

The sum actually received up to this date, as the first instalment of one-third of the price of the lands sold is upwards of 34,000 £, and we may still look for some payment from parties hitherto in default; upon the whole, therefore, it does not seem extravagant to calculate on 100,000 £ as the gross proceeds of these two townships, an amount equal to the value of the whole peninsula, as estimated by Mr. Oliphant in his report of 1854; from this, however, must be deducted the cost of the survey, and the incidental expenses connected with the sales. We may fairly count on a net increase to the Indian capital of 80,000 £, producing an annual income of 4,800 £.

The Indians will not, however, reap the full benefit of this for six years to come, as the remaining two-thirds of the purchase-money are spread in annual instalments over that space of time.

*Appendix, No. 1.*

I append to this report a statement made to me by Mr. W. R. Bartlett, who conducted the sale at Owen Sound on behalf of the Indian department; I venture to recommend to your Excellency's favourable consideration, the energy and ability displayed by that gentleman; as also the efficient assistance rendered to him by Mr. Edward Chesley on that occasion.

A further surrender of a small block of valuable land has been already obtained in that territory, and I have some hopes that before long, a considerable tract may be brought into the market.

Old surrenders.

A careful inspection of the records in the Indian Office has brought to light several old surrenders not yet acted on, some of which will benefit both the Indians and the country at large, by opening up for settlement lands hitherto considered to be locked up in the reserves, while in other cases, money can be collected for the Indians from squatters who had occupied their land without paying in any shape for it.

Penalties upon the Indians for encouraging trespass.

In connexion with this subject it may be well to remark, that the regulations made during this year for the restriction of trespass and plunder on the Indian reserves, promise to work well; by them, the Indians who are parties to any such transaction, are liable to forfeiture of their share of the annuity due to the band. Hitherto individuals of a tribe, for some paltry personal consideration, have been in the habit of assisting the whites to plunder the timber, and as they were secure from the operation of the law, it was very difficult to restrain them.

Anderdon quarries.

The large and valuable quarries belonging to the Hurons, in the township of Anderdon, have been leased for a period of 21 years, at an annual rental of 615 £. currency, an amount more than twice what was formerly enjoyed by that tribe; as this band numbers but few persons, such a sum, added to the proceeds of their land sales, will place them in a state of comparative affluence, even after the losses they have suffered by the defalcations of Colonel Clench, their late superintendent.

New Credit Indians.  
Death of Rev. Peter Jones.

The New Credit Band have had, during the past year, to deplore the death of their leading chief, the Rev. Peter Jones, whose vigilant care over their temporal as well as spiritual welfare, being strengthened by his influence over them as one of their race, contributed greatly to render them one of the most thriving and orderly tribes in Western Canada. We may trust, however, that the result of his labours will not expire with him, but that his energy and example will have had a permanent effect upon his people.

Walpole Island Indians.

In the course of my short tour in the western district, I visited the Indians on Walpole Island, who had not seen any officer of the department from head quarters, for many years; I was favourably impressed with their physical condition, and the Rev. Mr. Jamieson spoke hopefully of the result of his teaching among them. A very large proportion are still pagans, but he numbers an attentive and well-conducted congregation of upwards of 100, besides school children.

These Indians support themselves entirely by their agricultural pursuits, finding a tolerable market for any surplus produce of their farms, on the American side of the river.

Lower Canada.

Montagnais Indians.

Matters continue in a not very satisfactory condition in Lower Canada. Some of the nomade tribes, near the head waters of the Saguenay, have suffered much from famine. Such means as were at the disposal of the department have been used for their relief, but it is to be feared that they are still in great misery. They have, it is true, blocks of land reserved for their use, but removed as they are from all practical supervision, and to a great extent from any example of white industry and agriculture, their territory is of little use to them at present. They depend almost exclusively on fishing, and on the produce of the chase for a livelihood, and in a bad season are reduced to actual starvation.

Troubles at Caughnawaga.

In the more civilized districts, the depredations of the white population bordering on the reserves, have led to much ill-feeling, and in some cases to crime. It is to be hoped, that by a more careful supervision, and by the enforcement of regulations, such as those already alluded to, the evils may for the future be avoided.

Census.

There is a large increase in some of the Lower Canada bands. I have not been able to discover from what cause accurately, but I am inclined to attribute it to excess of births over deaths, as some of the bands have for years past been steadily becoming more numerous from this cause. The annexed table shows the difference in numbers between the present time and 10 years ago.

The

The education of the Lower Canadian tribes languishes. I regret to say that the schools are few and ill attended; a new one has, it is true, been just established among the Micmacs of the Restigouche, but there is a difficulty in providing funds for the salary of the teacher.

By the arrangements previously decided upon, the distribution of presents has ceased, and the last issue took place at Manitoulin Island. They had diminished so much in quantity and value, that the principal sufferers by their cessation are the aged, a large number of whom will be compensated by the annual issue of blankets, as recommended by Viscount Bury. In obedience to instructions received from your Excellency, I append a list of those who are recommended by the local superintendents as fitting objects to receive this bounty.

I also annex to this Report, a nominal return of the Indians enjoying pensions from the Imperial Government, which your Excellency was pleased to inform me has been called for by Her Majesty's Secretary of State for the Colonies.

All of which is respectfully submitted.

(signed) R. T. Pennefather, Superintendent General.

Appendix, No. 2.

Appendix, No. 3.

CENSUS RETURN OF INDIANS.

Under the Superintendence of Duncan C. Napier, made on the 18th day of September 1856.

T R I B E.	Adults.		Youths.		Children.		Total Number.	Increase since last Census.	Decrease since last Census.
	Males.	Females.	Males.	Females.	Males.	Females.			
1. Huron of Lorette - - - -	51	67	11	15	38	50	232	48	—
2. Amalците and Micmac Indians of Isle Verte, &c. - - - -	42	46	14	17	12	16	147	5	—
3. Abenquois of Becancour - - -	20	19	14	16	8	10	87	6	—
4. Algonquin, District Three Rivers -	15	25	3	5	10	9	67	-	12*
5. Iroquois of Caughnawaga - - -	362	360	86	66	292	253	1,419	387	—
6. Iroquois of St. Regis - - - -	127	143	48	47	159	134	658	120	—
7. Abenquois of St. Francis - - -	79	97	36	23	80	72	387	34	—
8. Nipissings and Têtes de Boule, of Lake of Two Mountains - - - -	68	73	30	31	87	82	371	4	—
9. Algonquin, of Lake of Two Mountains	65	70	27	19	91	69	341	1	—
10. Iroquois, of Lake of Two Mountains -	79	78	29	34	95	88	403	64	—
11. Micmac of Ristigouche, &c. - -	115	134	40	45	105	116	555	131	—
GRAND TOTAL - - -	1,023	1,112	338	318	977	899	4,667	800	12

\* Principally employed as hunters by the fur traders.

Indian Office, Montreal, }  
18 September 1856. }

(signed) D. C. Napier.

Appendix, No. 1.

Sir,  
His Excellency the Governor General having been pleased to entrust to me the conduct and management of the first auction sale of a portion of the Indian territory in the Saugeen peninsula, I have the honour to submit with my return all the books and maps connected therewith, and a tabular statement in detail, showing the result of the sale.

The two southern townships, Keppel and Amabel, containing about 144,000 acres, were the ones sold. Every lot was put up by the auctioneer; and of the whole number of acres offered, 35,364 were not bid for. They therefore remain over for the next sale.

The town plot of Southampton on the north side of the Saugeen River, at its entrance to Lake Huron, comprising 38 park lots from 1 to 19 acres, and 279 town lots of about half an acre each, was included in the sale of these two townships, and every lot sold.

The town plots of Oliphant and Wiarton, each containing 1,000 acres, laid out in town and park lots, are both situated in the township of Amabel. These were not included in my instructions, and were not brought forward. They also remain for future disposal.

Ten shillings and threepence was the average upset price for farm lots, and 18 s. 6 d. an acre the average rate at which they sold.

The farm lots sold at an average advance of 80 per cent.  
The park lots at an average advance of 150 per cent, and  
The town lots at an average advance of 325 per cent. on the upset prices.

Some few remaining farm and park lots were also sold on what is termed the half mile Indian strip, a portion of which was formerly surrendered to the Government by the Indians, and sold for their benefit.



It is to be supposed there will be some defaulters who will not make good their payments; but their number is comparatively small, considering the large amount of land sold and instalments paid upon it.

Assuming that the unsold farm lands sell at a future sale for no more than the upset price, which is a low amount to set them down at, seeing the average advance is 80 per cent. on their upset price, the whole produce of the two townships of Keppel and Amabel (exclusive of the town plots of Oliphant and Wiarton) will give for the benefit of the Indians the large sum of 135,730 *l*.

The Au Sable mill site, comprising 1,100 acres of land, offered at 2,000 *l*., sold for 2,390 *l*. The mill site near Owen Sound, containing 45 acres, put up at 500 *l*., sold for 760 *l*.

The amount of the first instalment of one-third of the purchase money, which has been paid into the bank by the buyers at this sale, is 34,061*l*. 1*s*. 7*d*. currency.

The Caughnawaga tract, situated very advantageously on the Owen Sound Bay, the surrender of which was only obtained from the Indians during the progress of the late sale, though small, is reported to be good land. Instructions had been forwarded to me, by direction of his Excellency the Governor General, to offer the same at the first sale; but having got through all the land, and closed the auction two days before these instructions reached me, and the people having nearly all dispersed and returned to their homes, many of whom had been waiting for this land, I felt that I could not, in justice to the department, and without causing much dissatisfaction, carry out that order. This tract will therefore remain to be offered at another sale.

The large tracts of some of the best land in the Peninsula, still held as reservations by these tribes of Indians, and lying as they do upon the borders of the surrendered portions, are considered a great bar to the rapid settlement of those portions already sold. These lands are unoccupied and uncultivated, and will probably remain in that state until they are given over to the management of the department.

If therefore, a surrender of these reservations could be obtained, it would tend very much to the benefit of the tribes, and be the means not only of settling the country, but of adding materially to their income.

Due notice having been given in the principal papers of the province, the sale was commenced at Owen Sound, and continued for five days in succession. The audience was large and highly respectable, being composed chiefly of the yeomen of the country, and numbered throughout the days of sale upwards of 1,000 persons.

The greater part of the farm lands were purchased by farmers, many of whom had been waiting more than a year for this opportunity of buying farms for themselves and their sons; and from the opening to the close of the sale, the competition was keen and spirited. The greatest good order and good feeling prevailed amongst the buyers, throughout the progress of the sale, and all expressed themselves well satisfied with the arrangements of the department.

I have, &c.  
(signed) W. R. Bartlett,  
Agent for the Sale.

R. T. Pennefather, Esq., Superintendent  
General of Indian Affairs, &c.

STATEMENT showing the result of the first Auction Sale of the Saugeen Indian Lands.

Number of acres of farm land in the tract	-	-	-	144,000
„ acres sold	-	-	-	109,000
„ acres unsold	-	-	-	35,000
				144,000

	Farm Lots.			Park Lots.	Town Lots.	
	£.	s.	d.	£.	£.	£.
Total value at upset price	55,823	-	-	4,305	1,950	62,079.
Total sale price	100,341	-	-	10,609	8,382	119,332.
Average upset price per acre	-	10	3	-	-	-
Average price per acre for which they sold	-	18	6	-	-	-
Average advance upon the upset prices	80 per cent.			150 per cent.	325 per cent.	-

Total Amount sold

Upset Value of unsold land

£. 135,730

Appendix, No. 2.

RETURN of the Aged Indians recommended for the annual issue of a Blanket.

TRIBE.	Men.	Women.	TOTAL.
Chippewas of Saugeen and Owen's Sound - - - -	7	9	16
Chippewas of Lakes Huron and Simcoe - - - -	9	14	23
Mississagas of Rice, Mud and Skugog Lakes - - - -	6	6	12
Mississagas of Alnwick - - - - - - - -	6	2	8
Mohawks, Bay of Quinté - - - - - - - -	11	14	25
Sandy Island Band - - - - - - - -	1	3	4
Six Nations - - - - - - - -	56	34	90
Mississagas of the Credit - - - - - - - -	10	11	21
Chippewas and Pottawatomies of Sarnid and Kettle Point -	11	13	24
Chippewas and Pottawatomies of Walpole - - - -	17	19	36
Chippewas and Munsees of the Thames - - - -	10	12	22
Moravians of the Thames - - - - - - - -	6	4	10
Wyendotts of Anderdon and Chippewas of Point Pelee -	3	5	8
Indians of the north shores of Lakes Huron and Superior -	32	40	72
Iroquois tribe of St. Regis - - - - - - - -	7	15	22
Iroquois tribe of Caughnawaga - - - - - - - -	35	25	60
Iroquois tribe of Lake of Two Mountains - - - -	7	10	17
Abenagois tribe of the St. Francis - - - - - -	12	13	25
Abenagois tribe of the Becancour and Three Rivers - -	6	0	6
Huron tribe of La Jeune Lorette - - - - - -	7	7	14
Amalicate and Micmacs of Isle Verte - - - - -	6	0	6
TOTAL - - - - -	-	-	521

Appendix, No. 3.

RETURN of PENSIONS borne on the Imperial Grant for the Indian Department.

NAME.	Amount Sterling per Annum.
	£. s. d.
G. Maccomber, retired interpreter - - - - -	36 - -
Ignace Portneuf, wounded chief - - - - -	21 13 4
Pierre Nicajona, wounded warrior - - - - -	15 3 4
William Solomon, late interpreter - - - - -	52 10 -
J. B. Assickinach, late interpreter - - - - -	15 - -
Mrs. Elliott, widow of late Colonel Elliott - -	74 6 -
£.	214 12 8

— No. 4. —

(No. 171.)

COPY of a DESPATCH from Governor General Sir Edmund Head, Bart.,  
to the Right Honourable H. Labouchere, M. P.

Government House, Toronto, 20 December 1856.

(Received, 5 January 1857.)

(Answered, No. 9, 7 January 1857, p. 40.)

Sir,

I HAVE the honour to transmit herewith an estimate of the probable expenses  
of the Indian Department in Canada during the year commencing the 1st April  
1857, and by it you will perceive a reduction of 1,172 l. 2 s. sterling from last  
year's estimate.

595.

In

No. 4.

Governor General  
Sir E. Head, Bart.,  
to the Right Hon.  
H. Labouchere,  
M. P.  
20 Dec. 1856.



• *Vide* House of Commons Paper, No. 247, of 1856, page 39.

In the item of presents, there is a saving of 800*l.*, after providing for a blanket each to 521 of the most aged and deserving persons in the various tribes, which, under the instruction conveyed in your Despatch, No. 42,\* of the 21st February, I have estimated at 300 *l.* sterling.

In the article of provision, the sum of 56 *l.*, to provide for 11 wounded and infirm Indians of Lower Canada, is set against 300 *l.* last year, whereby a further saving of 244 *l.* is effected; from the ordinary contingencies a reduction of 50 *l.* is made, and the article of gunpowder being discontinued, 78*l.* 2*s.* is taken off for that item.

I have, &c.  
(signed) *Edmund Head.*

Enclosure in No. 4.

Indian Department, Toronto, 20 December 1856.

ESTIMATE of the Expenses of the Indian Department, from the 1st April 1857 to the 31st March 1858.

	Sterling.		
	£.	s.	d.
Salaries - - - - -	2,255	7	-
Pensions to retired officers and to widows - - - - -	177	16	-
Pensions to wounded Indians - - - - -	52	10	-
Ordinary contingencies - - - - -	700	-	-
Provisions for 11 Indian pensioners at the villages of St. Regis, Coughnawaga, Lake of Two Mountains and St. Francis - - - - -	56	-	-
Blankets for 521 aged and deserving Indians of the various tribes in Canada - - - - -	300	-	-
	£.	3,541	13 -

Amounting to Three thousand five hundred and forty-one pounds thirteen shillings sterling.

Approved, *Edmund Head.*  
Certified, *S. Y. Chesley, Accountant.*

By Command,  
*R. T. Pennefather, Superintendent General.*

— No. 5. —

(No. 104.)

COPY of a DESPATCH from Governor General the Right Honourable Sir *Edmund Head, Bart.*, to the Right Honourable *H. Labouchere, M. P.*

Government House, Toronto, 4 December 1857.

(Received, 21 December 1857.)

(Answered, No. 2, 4 January 1858, p. 41.)

Sir,

I HAVE the honour to transmit herewith copy of a letter from the Chief Superintendent of Indian Affairs, reporting the substance of an address from a deputation of the principal Chiefs of the Six Nations.

I have, &c.  
(signed) *Edmund Head.*

No. 5.  
Right Hon. Sir  
E. Head, Bart., to  
the Right Hon.  
H. Labouchere,  
M. P.  
4 Dec. 1857.

1 Dec. 1857.

## Enclosure in No. 5.

Sir,

Indian Department,

Toronto, C. W., 1 December 1857.

Encl. in No. 5.

I HAVE the honour to report, for your Excellency's information, that on the 26th November last a deputation from the Six Indians arrived here to make certain representations touching their lands and timber.

The deputation consisted of a leading chief from each tribe, headed by their speaker.

In the course of his speech that functionary, Chief Seneca Johnson, on behalf of the other deputies, as well as in his own name, took occasion to express their lively sympathy with English interests in India, and their earnest prayer for the success of the Queen's arms.

He also requested me to convey to your Excellency the assurance of their readiness to evince their loyalty, by raising a corps among their own people, whenever their services may be called for.

I trust that it will be gratifying to your Excellency to receive these renewed proofs of the good feeling and patriotism of this portion of Her Majesty's subjects.

I have, &amp;c.

(signed) *R. T. Pennefather,*

His Excellency the Governor General.

Superintendent General.

## — No. 6. —

(No. 1.)

COPY of a DESPATCH from Governor General the Right Honourable Sir *Edmund Head, Bart.*, to the Right Honourable *H. Labouchere, M. P.*

Government House, Toronto, 2 January 1858.

(Received, 13 January 1858.)

(Answered, No. 11, 22 January 1858, page 41.)

Sir,

I HAVE the honour to enclose the Annual Estimate of the Expenses of the Indian Department in this Province, from the 1st of April 1858, to the 31st March 1859.

It has been made out in accordance with the form prescribed in your Despatch of 7th January 1857, No. 9.\* The only change which has been made is the addition of 288/., being the amount of the retired allowance granted to Colonel Napier, late Visiting Superintendent for Lower Canada. The sum inserted for salaries has not been reduced, as either a successor must be appointed to that gentleman, or, in the meantime, these tribes must be visited from head quarters. The sub-agents resident among the tribes will necessarily have to be paid for the increased trouble and responsibility entailed upon them, if they are employed as the direct channel of communication between the Indian Department here and the several bands of Indians.

I learn from the annual statement made to me by the Superintendent General—herewith enclosed—that the Report to be made by the Commissioners for the investigation of matters connected with the Indian department, will soon be ready. I hope that this, as well as other points, will then be definitively adjusted.

I have, &amp;c.

(signed) *Edmund Head.*

No. 6.

Right Hon. Sir  
E. Head, Bart., to  
the Right Hon.  
H. Labouchere,  
M. P.  
2 January 1858.

\* Page 40.

28 Dec. 1857.



## Enclosure 1, in No. 6.

Indian Department, Toronto, 22 December 1857.

Encl. 1, in No. 6. AN ESTIMATE of the Expenses of the Indian Department in Canada, from the 1st April 1858, to the 31st March 1859.

Items of Expenditure.	Amount.	REMARKS.
	£. s. d.	
Salaries - - - - -	2,255 - -	288 <i>l.</i> added for D. C. Napier's retired allowance.
Pensions to retired officers and to widows -	450 10 -	
Ditto to wounded Indians - - - - -	52 10 -	
Provisions and gunpowder for the use of Indians who live by the chase; also for blankets for aged and deserving Indians -	630 - -	
TOTAL - - - - £.	3,388 - -	

Amounting to Three thousand three hundred and eighty-eight pounds sterling.

Approved,  
*Edmund Head.*Certified,  
*S. Y. Chesley, Accountant.*By Command,  
*R. T. Pennefather, Superintendent General.*

## Enclosure 2, in No. 6.

Indian Department, Toronto, C. W., 28 December 1857.

Encl. 2, in No. 6.

May it please your Excellency,

IN laying before your Excellency the statement of the condition of Indian affairs during the past year, I have the honour to report that it has been upon the whole satisfactory.

I regret, however, that illness on my part by interfering with some of my projected visits to the tribes will prevent me from speaking of many matters from personal observation. I have too abstained from entering into any questions relating to the future management of the Indians, and the topics connected therewith, as these will be more properly discussed at length in the Commissioner's report which is in course of preparation, and which we hope shortly to lay before your Excellency.

Accidental causes, such as the destruction of their crops by fire, added to their own improvidence, occasioned much distress during last winter among several of the bands. The Six Nations in particular suffered from these evils. Nothing but the timely relief granted by your Excellency saved both them and the Saugeen Indians from absolute starvation.

This distress must be considered only as partial and temporary, and not affecting the condition of the tribes considered collectively.

In pursuance of the policy approved of by your Excellency, I have endeavoured to obtain surrenders from the different bands, of all the land that they could be induced to cede. I am happy to say that I have been to a certain extent successful in these attempts. A valuable tract of land in the Saugeen Peninsula has been already surveyed and sold for the benefit of the tribes surrendering. While that large block of land in the valley of the Thames, known as the Moravian Reserve, has also been obtained from the miserable remnant of the Delawares, in whose hands it lay so long neglected and waste. The importance of this treaty can hardly be over-estimated.

Independent of the intrinsic value of the soil, and the timber which still remains upon it, the condition of the tract situated in the middle of the most fertile parts of Canada West, was a great inconvenience to the neighbouring settlers, who might wish to pass through the township, or into the adjoining counties; so long as the land was kept as an Indian reserve, they were obliged to travel many miles out of their way.

This tract has also been surveyed, and will be brought into market upon the first favourable opportunity.

In this case, as well as in the recently obtained surrender in the Saugeen Peninsula, the plan has been adopted of locating the Indians upon small farms, varying in size from 25 to 37½ acres. Each family will receive for these farms a sort of inalienable title or perpetual license of occupation. The object of this provision in the treaty is to prevent internal bickerings and misunderstandings among the members of the tribe. So long as they have no settled interest in their respective lots, or have undefined limits to their patches of cleared land, such dissensions are very likely to arise.

In the case of the Saugeen surrender a further experiment has been tried. On the western side of the bay opposite to Sydenham, a town plot was laid off. To make the terms

terms of payment easier to the purchasers of these town lots, I allowed them the option either of purchasing at the price at which the lot was knocked down to them, and paying down the instalment of one-fourth of the purchase money; or, secondly, of taking a lease for 10 years of the land. In this case they would pay in advance an annual rent equivalent to six per cent. on the purchase-money. At the expiration of the lease they may convert their tenure into a freehold by paying the original sale price, with an addition of 25 per cent. Should they be disposed to pay up in full before the termination of the lease, they will then be entitled to a discount of two per cent. annually deducted from the sum which they would have had to pay at the end of the 10 years.

If the lease from any cause becomes forfeited, the land, with all the improvements thereon, may be re-sold for the benefit of the Indians. The plan therefore virtually amounts to a sale on a credit of 10 years; while the Indians have the advantage, from the day of sale, of the interest accruing from the whole purchase-money, and also an addition of one-quarter of the sum arising from the sale of such land.

This latter will be, of course, invested for their benefit.

The agent who conducted the sale reports that the plan promises, so far, to work most successfully.

The town lots were disposed of rapidly at a great advance for the most part on the upset prices, while the buyers who attended the sale declared that if the instalment of one-fourth had been required to be paid but a very small portion of the town plot would have been sold.

The stringency of the money market and the low price of farm produce have had their effect upon the prices realized at this sale. Good lots, however, fetched very high prices; and, while much of the land went at its upset value, I cannot but consider the sale to have been a satisfactory one, as it enabled us to dispose of nearly all the lands in Keppel and Amabel, for which, last year, no bids were made.

Appendix, No. 1, being the report made to me by the agent who conducted the sale, will show your Excellency the details of the prices at greater length than I think it necessary to embody in this report.

Surrenders have also been obtained of some islands in Lake St. Clair, and in the river of the same name. Though small in extent they are valuable as fisheries, and will be the means of increasing the scanty revenue of the Chippewas of Walpole Island.

Negotiations have also been set on foot for the cession of the large reserve occupied by the Batchewaning Bay band; but I regret to say that they have not as yet proved successful, owing to the exorbitant demands made by the Indians themselves, and in great measure to the intrigues of parties whose interest it is to oppose any surrender, in order that they may reap their own profit from the reserve.

It appears to me that it would be highly advantageous to the interest at once of the Indians and of the Province at large, if the several Acts and Ordinances which have been passed, relating to the Indians, were consolidated and codified. There is a doubt how far the latter are still in force, and some of the provisions of the former are over-ridden and rendered nugatory by subsequent legislation, so that it is difficult to arrive clearly at the present state of the law.

Were some such course adopted as that which I now propose, the law would be more accessible to and better understood by the people generally than it is at present; and thus many of the difficulties which so constantly arise in reference to trespass on the Indian lands would in future be avoided.

It is not a very uncommon thing for a man newly arrived in this country to be guilty of a breach of the law by squatting on Indian reserves, or entering into agreements with the occupants thereof for the purchase of their land or timber. So long as the law remains in its present complicated condition such an offender has a certain excuse for pleading ignorance of its provisions; and the Commissioners appointed to enforce it are sometimes perplexed by the obscurity or conflict of different Acts. Much trouble has arisen among the Mohawks of the Bay of Quinty, from illegally cutting timber on their reserve. The railroad running through their land offers an irresistible temptation to transgress the law by affording a ready market for the plundered wood. I have, however, appointed a warden at an annual salary of 100 dollars, payable from the Mohawk funds, whose duty it will be to protect the timber from pillage.

Considerable dissatisfaction has been occasioned among the Indians of Lake Superior, with reference to their annuity.

This has always been paid through the Honourable the Hudson's Bay Company, who kindly took charge of its distribution, as their ports afforded them unusual facilities for so doing, and the Indian Department is much indebted to them for the accurate way in which they have discharged their trust. As might be expected from the nomadic life of an uncivilized people, it has frequently occurred that an individual entitled to share in the annuity is absent from the band at the time of its distribution. In such a case his portion, as was just, was retained for him in expectation of his return. Many of these stragglers have never re-appeared, and the tribes have for some time pressed that the accumulations reserved for them should be considered forfeited, and be distributed among the band at large. Influences have been at work by which the Indians have been led to believe that the Company and the Government are trying to defraud them by holding back the annuity. Misled by this delusion, some of them have refused to accept their money this year. Under these circumstances, I have, with your Excellency's sanction, followed Sir George Simpson's suggestion, and divided most of the arrears among the tribes, reserving only the unclaimed

shares



shares of the last year to be paid to the absentees, should they return before the next distribution.

The Indians on the Maintoulin Islands have remonstrated against the license of occupation for a post on the island granted to the Hudson's Bay Company, alleging that encroachments on their lands have been made under cover of it. As the matter is now before your Excellency in Council, I forbear to enter at length into the question here.

In Lower Canada, a vacancy has occurred by the resignation of his office as Visiting Superintendent, by Colonel Napier.

His district comprised the whole of that section of the Province. Some of the bands, however, have local agents attached to them, who are under bonds to the Government, but whose remuneration is wholly derived from a per-centage levied on the rents which they collect.

For many years past, Colonel Napier's infirmities have prevented him from giving that active supervision to the distant tribes which would have been conducive to their progress in civilization. They have been almost entirely dependent on the gratuitous labours of the missionaries who visit them.

Looking to the necessity for the economical administration of the Indian Department, when the Imperial grant is withdrawn, I would submit for your Excellency's consideration, the propriety of not filling up at present the vacancy caused by Colonel Napier's retirement. When your Excellency, after the reception of the Commissioner's report, shall have definitively decided upon the line of policy to be pursued, final arrangements can be made in this respect. As a temporary measure, however, I would propose to appropriate a portion of the salary now attached to the office of superintendent, for the payment of a small stipend to each of the resident agents belonging to the principal bands of Lower Canada, who should henceforward correspond directly with head quarters, and be charged with the conduct of all the business of such tribe.

As it now stands, much is necessarily carried on through persons unpaid by, and virtually irresponsible to the Government. Such an augmentation as I propose to the pittance they now receive from the Indian rents, would render them more zealous in the discharge of their duties.

There is one tribe in particular to which I beg to draw your attention, the Micmacs of the Restigouche. By their geographical position, they are virtually isolated from their brethren in the valley of the St. Lawrence, from whom they are divided by upwards of 100 miles of a perfectly wild country. It is impossible, therefore, that any effectual supervision can be exercised over them directly from head quarters.

Until my visit this summer, they had seen no officer of the department for 15 years; nor in any case could more than an annual visit be paid to them by an officer having under his charge, superintendence of the tribes in the whole of Lower Canada.

It would seem to me, therefore, of importance, that their interest should be protected by an agent residing on the spot. Their reserve is coveted by the neighbouring settlers, and has already been extensively encroached upon.

I was much pleased with their appearance on my visit to them, and their missionary gives the most satisfactory account of their progress in civilization, and their desire for improvement.

They complained much of the destruction of their salmon fishery in the Restigouche, but it would, I fear, be very difficult to remedy this grievance, inasmuch as the laws of Canada for the preservation of the fisheries are different from those in New Brunswick.

They expressed themselves very grateful for the assistance granted by the Provincial Parliament, for the payment of a schoolmaster in their village.

The troubles among the St. Francis Indians relative to the sales and leasing of part of their reserve, and the complaints against their agent, still continue. I have had the honour of submitting to your Excellency a proposal made by part of this tribe, to remove to another location.

Split into two parties as this band is by religious dissension, I should be glad if it be found possible to adopt some such compromise, and I await your Excellency's commands upon the subject.

At Caughnawaga, too, the disturbances consequent upon plunder of timber and the intrusion of the whites are yet unchecked. I have found it impossible as yet to bring the tribe to any satisfactory arrangement for the adjustment of these differences, nor do I see much hope of any satisfactory settlement, so long as they remain under the influences which are brought to bear upon them in their present location.

None of the Indians have as yet taken advantage of the Act of last Session, but I am in hopes that this will not long continue. Considerable delay unavoidably took place in the distribution of copies of the Act among the different tribes, but I have lately received several applications from individual Indians for additional copies. This shows that the subject is beginning to excite interest among the more educated, the very class who will be likely to profit by its provisions.

I submit herewith a copy of the account current furnished by the Commissariat to this department. It appears, upon inquiry, that, as is usual with the money voted by Parliament, the large balance standing to the credit of the Indians is only shown upon paper, and is not actually available for any expenditure. As, however, it represents the accumulations resulting from the balance to the credit of the account at the end of each year for some time back, it is clear that it has been actually granted by the Imperial Parliament for the use of the Indians, but not drawn from the public chest. If it were possible to  
apply

apply any part of it to the purchase of annuities as pensions for some of the old officers of the department, it would at once be a well earned acknowledgment of their long labours, and would tend to place the department in a more effective condition, by introducing younger men into the service.

The whole respectfully submitted.

His Excellency the Governor General,  
&c. &c. &c.

(signed) *R. T. Pennefather,*  
Superintendent General.

Sir,

Toronto, 30 September 1857.

I HAVE the honour to report the result of a portion of the Indian land sale, which was opened as advertised, at Owen Sound, on the 15th, and closed on the 22d instant.

The audience was not quite so large as that at the sale last year, owing in some measure to the lateness of the harvest, in the northern and western parts of the Province, which prevented many farmers from attending; and it was observed that there were fewer speculators at this than at the former sale.

Nevertheless, this sale may, on the whole, be considered a very good one.

In terms of my instructions, a choice of two modes of payment was given to purchasers of the town plot of Brooke. One was that of a 10 years' lease, the interest on the amount at which the lots were bid off to be paid in advance annually, and 25 per cent. to be added to the price of the land at the end of that period, on changing the tenure from leasehold to that of freehold.

The other mode was the payment of an instalment of one-fourth of the purchase money down, at the time of sale, and the remaining three-fourths in six annual payments, with interest.

The plan of leasing was entirely successful, and nearly all who purchased preferred taking a lease and paying the interest. Very few indeed paid the instalment; and I feel quite sure that if this system had not been adopted, the sale of this portion of the property would have been a failure. It was the easy terms of payment upon which they were offered that induced people to bid for the town plot, and nearly the whole have been sold.

It is impossible at this early period to render an exact return; but the result of the sale of the town plot of Brooke will not vary much from the following:

One hundred and twenty-one small park lots of five acres each, which were all sold at an average advance of more than 100 per cent. above the upset prices. They were put up at 2,614 *l.*, and sold for 5,531 *l.*

The town lots numbered about	-	-	-	-	2,000
Deduct unsold	-	-	-	-	257
Leaves sold	-	-	-	-	1,743

These were put up at prices varying from 3 *l.* to 11 *l.* a lot of about one-fourth of an acre each, and were offered at 9,686 *l.*, and sold for 17,419 *l.*, or a trifle less than 100 per cent. advance on upset prices.

#### RECAPITULATION:

Park lots - upset	-	£. 2,614	Sold for	-	-	£. 5,531
Town lots - „	-	9,686	„	-	-	17,419
		£. 12,300				£. 22,950

Of the lots unsold, four had houses on them which were valued at 40 *l.* each, and was considered too high a valuation. They were not bid for. Three others, on which were the Indian Church and Parsonage, were withheld from sale.

I shall, with as little delay as possible, complete the return of the farm lands, and will then furnish you with a detailed report.

With regard to the leases, I promised to have them completed and furnished to the lessees at an early date, and have given receipts to them for one year's interest in advance, paid to the agent of the Bank of Upper Canada, at Owen Sound, and at Toronto.

I have, &c.  
(signed) *W. R. Bartlett,*  
Agent for the Sale.

*R. T. Pennefather, Esq.,*  
Superintendent General, Indian Affairs,  
&c. &c. &c.



Sir,

Toronto, 19 December 1857.

I HAVE the honour to submit my report, with detailed returns, showing the result of the second sale of Indian lands, which was opened at Owen Sound on the 15th, and closed on the 22d September last.

Although the number of farm lots offered for competition was less at this than at the former sale, the time occupied by the auctioneer in selling was two days longer. This was occasioned by the sale of the large town plot of Brooke, which was comprised of 2,032 town and small park lots, each of which was put up separately.

The whole of the park lots (123), and 1,634 of the town lots were bid off, making a total of 1,757 lots sold.

My instructions were to offer two modes of payment to the purchasers of lots in Brooke. One by an instalment of one-fourth of the purchase money to be paid down, and six annual payments for the remainder; the other on a 10 years' lease; the purchaser or lessee to pay one year's interest at six per cent. in advance, yearly, on the amount of the lots bid off for the term of the lease; and at the end of that period, to pay an addition of 25 per cent. on the original purchase price.

The latter mode was considered the most favourable, and was generally chosen by a large majority of the buyers; as, of 1,162 lots settled for, only 173 were taken on the payment of the instalment of one-fourth down.

In the town plot of Brooke there are numbers of Indian houses, eight of which were valued at 40 *l.* to 50 *l.* each, and one at 100 *l.* Of these only two were sold and paid for, the valuation being considered too high.

As regards the principle of leasing, and judging by what I heard from numbers of the people present at the sale, I feel persuaded that if that system had not been adopted, the sale of the town plot could not have been effected.

The time for holding the sale was well chosen. There had been, for a short time previous, a slight pressure for money, which, doubtless, in some measure affected the receipt of instalments paid in at Owen Sound; but the effect of the monetary crisis since the close of the sale has been very apparent, in the small amount of instalments paid into the banks here. Many of the large purchasers at the first sale of lands in 1856 had been allowed to complete their payments in this city, and the same parties who had purchased at the recent sale, promised, and, doubtless, intended to deposit their instalments here, but have failed to do so.

There will, consequently, be a large number in default, whose lots will be forfeited, unless the Department should think proper, under the circumstances, to grant those persons an extension of time to make good their payments.

The amount due for the first instalment is \$18,632. See Table No. 2.

It will be seen in Table No. 4, that a large number of purchasers of the lands in Sarawak are behind with their instalments; there being 4,299 $\frac{3}{4}$  acres, or nearly half the lots in the township unpaid. I imagine that nothing but the extreme difficulty in procuring money could have prevented these persons from making their payments; for these were the most desirable lands offered at the sale, were much sought after, and there was consequently a spirited competition amongst the bidders.

I had prepared my returns in the currency heretofore used, but, according to your directions, have changed the entries of all the lots to dollars and cents, the form prescribed by the Provincial Act passed last Session, which goes into operation on the 1st of January next.

I append five tables.

No. 1. Return of all land sold.

No. 2. Shows the portion in which the instalment is paid and unpaid, and the amount due to the Department.

No. 3. Return of unsold land and its value at the upset price.

No. 4. Detail of the sale of the town plot of Brooke.

No. 5. Shows the amount of money paid in for instalments, and the tribe to which it belongs.

I have, &c.  
(signed) *W. R. Bartlett,*  
Agent for the Sale.

R. T. Pennefather, Esq.,  
Superintendent General, Indian Affairs,  
&c. &c. &c.

(No. 1.)

RETURN of Indian Lands sold in September 1857.

PLACE.	Total Acres sold.	Sum for which they were bid off.		
		Doll.	Cts.	
Albemarle - - - - -	50,264	90,007	60	\$ 153,066 <sup>35</sup> / <sub>100</sub>
Amabel - - - - -				
Keppel - - - - -				
Caughnawaga - - - - -	1,599	8,398	70	
Sarawak - - - - -	9,748	49,188	30	
Half-mile Strip - - - - -	78 <sup>1</sup> / <sub>2</sub>	5,471	75	
	61,689 <sup>1</sup> / <sub>2</sub>			
Southampton (Town) - - - - -	49 lots	2,856	60	Improvements on the lots leased.
Town of Brooke - - - - -	1,757 lots	88,136	-	
		1,054	-	
	\$	245,112	95	

Farm lots, 61,689 <sup>1</sup>/<sub>2</sub> acres sold for \$ 153,066, being an average of \$ 2.48 per acre.

					Upset.	Sold for.
					Doll. Cts.	Doll. Cts.
Highest rate per acre for farm lots - - - - -	-	-	-	-	6 -	20 20
Lowest ditto for ditto - - - - -	-	-	-	-	- 50	- 50

(No. 2.)

Showing the Lands on which the Instalments are paid and unpaid, with the Amount due.

PLACE.	Instalment Paid.		Instalment Unpaid.		Amount of Instalment due.
	On Acres.	Sold for.	On Acres.	Sold for.	
		Doll. Cts.		Doll. Cts.	Doll. Cts.
Albemarle - - - - -	34,385	57,582 60	4,730	4,993 -	1,248 25
Amabel - - - - -			4,673	12,000 -	3,000 -
Keppel - - - - -			6,476	15,432 -	3,858 -
Caughnawaga - - - - -	1,387	7,077 50	212	1,321 20	330 30
Sarawak - - - - -	5,448 <sup>1</sup> / <sub>2</sub>	18,754 30	4,299 <sup>3</sup> / <sub>4</sub>	30,434 -	7,608 50
Half-mile Strip - - - - -	18	1,939 75	60 <sup>1</sup> / <sub>2</sub>	3,532 -	1,024 25
	41,238		20,451 <sup>1</sup> / <sub>2</sub>		
Town of Southampton	35 lots	2,255 60	14 lots	601 -	150 25
Town of Brooke - - - - -	1,162 lots	65,634 -	595 lots	23,556 -	1,413 36
				\$	18,632 91



(No. 3.)

LIST of Unsold Lands, and their Value at the Upset Prices.

P L A C E.	Acres.	Value at Upset Price.	
		Doll.	Cts.
Albemarle - - - - -	31,322	31,581	75
Amabel - - - - -	1,396	3,444	-
Keppel - - - - -	18,831	34,678	25
	51,549	69,704	-
Town of Brooke, Town Lots -	275 lots	7,754	-
TOTAL Value of Unsold Lands - - \$		77,458	-

(No. 4.)

TOWN OF BROOKE.

RETURN showing particulars of the Sale in 1857.

No. of Lots.	Amount sold for.	REMARKS.
173	<i>Dollars.</i> 9,486	Paid by instalment of $\frac{1}{4}$ down.
989	55,094	Taken on a 10 years' lease, and the first year's interest on that sum, at 6 per cent., paid in advance, producing \$3,305.
—	1,054	There were small improvements on the leased lots, the amount of which was paid in full, viz., \$1,054.
595	23,556	Purchasers in default on these lots; instalment of interest unpaid, which amounts to \$1,413 $\frac{35}{100}$ .
	\$ 89,190	Total value of all the lots sold.
275	- - -	Unsold, of the value of \$7,754 at the upset price.

2,032 Total lots in Brooke.

Upset Price.

Highest price obtained for town lots	- -	\$ 408 - -	- \$ 44
Lowest ditto ditto	- -	12 - -	- 12
Highest rate obtained for park lots	- -	176 an acre.	- 32 an acre.
Lowest ditto ditto	- -	12 „	- 12 „

(No. 5.)

STATEMENT showing the Amount of Money received at the Sale of Indian Land in September 1857, and the Tribe to which it belongs.

Chippewas of Saugeen and Owen Sound, or the whole Band of the Peninsula.		<i>Dol.</i>	<i>Cts.</i>
Amount received for second instalment on last year's sales - - - -		1,538	73
For payments on land sold this year in Albemarle, Amabel, Keppel, and Southampton, &c. - - - - - - - - - -		15,740	65
		17,279	38
NEWASH BAND.			
For first instalment of one year's interest in advance on lots sold in Brooke, on a lease of 10 years, for the sum of \$ 55,094 as principal - - - - -	<i>Dol.</i>	<i>Cts.</i>	
	3,305	10	
For improvements on the above lots paid up in full - - -	1,054	80	
For instalments on sales in Sarawak, Caughnawaga, and Brooke	13,922	71	
		18,282	61
	\$	35,561	99

	<i>Dol.</i>	<i>Cts.</i>	
Paid to Receiver General's credit in Bank, per receipts -	35,347	75	
Deposited by Keeshiek, for which there is no receipt -	215	13	
	\$ 35,562	88	
Surplus, deduct - - - -	-	89	occasioned by alteration of currency.
	\$ 35,561	99	

CANADA EAST.

THE INDIAN DEPARTMENT, under the Authority of His Excellency the Governor General, in account current with the Right Honourable the Lords of Her Majesty's Treasury, from 1st April to 30th September 1857.

No.	Date. 1857.	Dr.	Amount Sterling.	No.	Date. 1857.	Cr.	Amount Sterling.
	1 April.	To remains of presents in store on 31st March 1857 - - -	£. s. d. 345 19 -		1 April.	By Parliamentary Grant for the year ending 31st March 1858 - -	£. s. d. 4,000 - -
		Payments made to Indian Department:		1	30 Sept.	By sums received on account of the Indian Department - - -	nil.
1	30 Sept.	To Contingencies - £ s. d.		2	30 Sept.	By value of presents remaining in store this 30th September 1857	345 19 0
2	30 Sept.	„ Salaries - - 211 2 11					
3	30 Sept.	„ Pensions - - 31 - -	280 4 6				
4	30 Sept.	„ Value of provisions issued to Indians - - - -	13 19 7				
		To Balance - - - -	3,705 15 11				
			£. 4,345 19 -				£. 4,345 19 -

Commissariat, Canada,  
Montreal, 30 September 1857.

(signed) C. A. Clarke,  
Deputy Commissary General.



## CORRESPONDENCE RESPECTING ALTERATIONS

## C A N A D A   W E S T .

THE INDIAN DEPARTMENT, under the authority of His Excellency the Governor, in account current with the Right Honourable the Lords Commissioners of Her Majesty's Treasury, from 1st April to 30th September 1857.

No.	Date. 1857.	Dr.	Amount Sterling.	No.	Date. 1857.	Cr.	Amount Sterling.
			£. s. d.				£. s. d.
	1 April.	To remains of presents in store on 31 March 1857 - - -	133 3 8		1 April.	By Parliamentary Grant for the year ending 31 March 1858 - -	13,380 - -
1	30 Sept.	To value of presents purchased in Canada West this period - -	127 17 -	1	30 Sept.	By sums received on account of Indian Department - - -	-
		Payments made to Indian Department:		2	30 Sept.	By remains of presents in store this 30th September 1857 - -	261 - 8
2	30 Sept.	To Contingencies -	155 19 11				
3	30 Sept.	„ Salaries - -	882 14 1				
4	30 Sept.	„ Pensions - -	63 7 2				
			1,102 1 2				
		To Balance - - -	12,277 18 10				
			£. 13,641 - 8				£. 13,641 - 8

Commissariat, Canada,  
Montreal, 30 September 1857.

(signed) C. A. Clarke,  
Deputy Commissary General.

— No. 7. —

(No. 41.)

No. 7.  
Right Hon. Sir E.  
Head, Bart., to the  
Right Hon. Lord  
Stanley, M.P.  
7 April 1858.

COPY of a DESPATCH from Governor General the Right Honourable Sir Edmund Head, Bart., to the Right Honourable Lord Stanley, M.P.

Government House, Toronto, 7 April 1858.

(Received, 26 April 1858.)  
(Answered, No. 38, 1 May 1858, page 48.)

My Lord,

\* Page 41.

I HAVE had the honour of receiving your Lordship's Despatch of March 15, No. 10,\* relating to Indian matters.

I am informed that the Report of the Commissioners on this subject is finished, and is now being printed. So soon as it is placed in my hands I shall not fail to forward it for your consideration.

In the meanwhile I enclose a copy of a memorandum from the Superintendent General, respecting the concluding paragraphs of your Lordship's Despatch.

I have, &c.  
(signed) Edmund Head.

Enclosure in No. 7.

Encl. in No. 7.

## MEMORANDUM.

THE Superintendent General of Indian Affairs has had the honour of perusing the Despatch from the Secretary of State for the Colonies, dated 15 March 1858, No. 10.

He deeply regrets the decision of Lord Stanley respecting the blankets. These were issued last year as a gratuity, in consequence of a suggestion from Viscount Bury, when at the head of the Indian Office. The distribution was sanctioned by Mr. Labouchere in these words:—

“But it has been represented that there is a certain number of aged and destitute Indians who would feel severely the loss of their annual blanket. \* \* Lord Bury appears to have addressed a circular letter to the officers of the department, calling for a return of really deserving objects coming within the terms of the foregoing description. He proposes that only the oldest and best conducted Indians should be admitted to the boon, that none of them should be less than 60 years of age, and that no fresh names should be hereafter added to the list. Kept within these limits, and supposing that the total pecuniary cost should be as moderate as is expected by Lord Bury, I have little doubt that Parliament would be willing to continue the small grant requisite for this bounty, viewing it as a charity to the individuals, and a mark of consideration for the tribes to which they belong. I shall be glad to receive from you, as soon as it can be made out, a complete return of the numbers

Report, paragraph  
49, Printed Parlia-  
mentary Paper,  
2 June 1856.

Mr. Labouchere to  
Sir E. Head, Bart.,  
No. 2, 21 Feb.  
1856.

numbers of persons recommended for the continuance of the yearly blanket, and an estimate of the cost."

Such lists have been furnished, and the expense has not exceeded the 300 l. proposed.

As regards the estimate for provisions, the Superintendent General respectfully remarks, that the provisions issued under this grant, amounting in value to 56 l. sterling, are the sole support of 10 indigent Indians in Lower Canada, who receive them in the light of a pension, being precluded by bodily infirmity from obtaining their own living. The balance of the grant would probably not be required except in the case of famine among the bands who have no revenue or cultivated land of their own.

As regards the pensions, Mr. Labouchere, in the above cited despatch, distinctly promises their continuance without any stipulation. He says:—

"The pensions will continue to be paid during the lives of the holders."

The whole respectfully submitted.

Indian Department, Toronto,

7 April 1858.

His Excellency the Governor General.

(signed)

R. T. Pennefather,  
Superintendent General.

— No. 8. —

(No. 56.)

COPY of a DESPATCH from Governor General the Right Honourable Sir Edmund Head, Bart., to the Right Honourable Lord Stanley, M.P.

Government House, Toronto, 12 May 1858.

(Received, 31 May 1858.)

(Answered, No. 8, 14 June 1858, page 43.)

No. 8.

Right Hon. Sir E.  
Head, Bart., to the  
Right Hon. Lord  
Stanley, M.P.  
12 May 1858.

My Lord,

I HAVE at length the satisfaction of submitting to your Lordship a copy of the report\* of the Commissioners appointed by me for the purpose of reporting on the condition of the Indian tribes, and the management of their affairs.

The report contains a very large mass of valuable and detailed information. The Commissioners suggest, too, more than one scheme for conducting the business, and defraying the expenses of the Indian Department.

After much consideration, I am of opinion that if the expenses of the Department, and the assistance to the Indians, cease to be a charge on the Imperial funds, the management and control of the whole must necessarily devolve on the Provincial Government, and be subjected to the control of the Provincial Parliament.

Accordingly, I have submitted the report to my Council, with a memorandum, of which a copy is enclosed.

Your Lordship will see from this memorandum what is the outline of the plan which it appears to me possible to adopt; and I shall be glad to receive the opinion of Her Majesty's Government on its general character. The danger will always be, that the control of the Provincial Legislature, to which any Provincial Department must be subject, will not effectually prevent complaints on the part of the Indians of encroachments by individuals, or check the infringement of rights and privileges originally guaranteed by the Crown of England under a different state of things. It may be inevitable that in the course of the change which has taken place in the relations of Great Britain to these Colonies this risk should be run, and from what has already passed, I infer that such is the conviction of Her Majesty's advisers in England. A difficult question may arise as to the "patented lands" referred to in my memorandum. The patents are no doubt binding in good faith and honour, but it may be very doubtful whether they have any legal force, inasmuch as the Indian tribes in whose favour they were granted had not, I conceive, any such corporate existence as would give them the capacity of taking an estate under an instrument of this kind.

This principle is affirmed in the judgment given by the Court of Queen's Bench at Toronto during Trinity Term in the year 1850, in the case of Ramsay et al. v. William Bull Sheldon.

I cannot yet say whether the Executive Council will be prepared to adopt a plan in accordance with the outline which I have laid before them. If they do so, and the Bill is properly drawn, I still hope that the remaining rights and privileges of the Indians will be at least as well secured as they have hitherto been.

Until

\* The Report which accompanied this Despatch is a bound volume, consisting, with the evidence, of 293 printed pages, and is not, on account of its length, reprinted.



Until the preparation of this report, it was difficult to ascertain the exact state of any particular tribe, or to refer to the facts affecting their property. I feel grateful to these three gentlemen who have succeeded in placing within my reach information of so important a character. Your Lordship will see from the statistics that no proof whatever exists of the gradual wasting and diminution of the Indians as at present going on.

I have, &c.  
(signed) *Edmund Head.*

Enclosure in No. 8.

Encl. in No. 8.

MEMORANDUM.

HIS Excellency the Governor General desires to solicit the consideration by the Executive Council of the Report from the Indian Commissioners appointed in pursuance of the Order in Council of July 12, 1856.

The Council will see that in addition to a mass of valuable information, the Report contains several schemes or plans for the future management of the Indian business.

His Excellency has long been of opinion that the time is rapidly approaching when the management of the Indian Office ought to be placed on a different footing, and should in some shape be brought under the consideration of the Legislature. His Excellency is inclined to believe that, with all regard for justice and good faith towards the Indians, steps may be taken for causing the Indian business to be conducted under a direct responsibility to the Provincial Legislature; but the treaties made with the several tribes, and the peculiar position of this people, require great care and consideration in securing their just rights whilst their lands are opened for settlement.

In pursuance of the Order in Council of 12th July 1856, the foundation has been laid for forming out of the Indian property a fund for meeting, in part at least, the expenses of the control and management of their property.

His Excellency is inclined to think that the Council might cause a draft Bill to be prepared, founded in some degree on the principles set out in the annexed memorandum (A). The good faith of the Imperial Government is so much involved in the dealings with the native tribes, that his Excellency would desire to submit such draft to the Secretary of State for the Colonies before its introduction in the Provincial Legislature, with a view to avoiding any controversy on the principle of the measure itself while it shall be passing through Parliament, or after its adoption by the Legislature.

If the Executive Council agree with his Excellency in their views, the draft might be prepared and laid before the advisers of Her Majesty in England in the course of the next summer, so as to admit of its final discussion by the Council before the next Session of Parliament.

In this case, however, it would be very desirable that no legislation of a partial character on the same subject should take place in the course of the current Session, but that the matter should remain to be dealt with as a whole in the Bill to be prepared.

His Excellency will be ready to assist in every way the adoption and preparation of any scheme which will tend to open to settlers the lands now held in reserve for the Indian tribes, and will secure the control of the Provincial Parliament over the general management of their affairs; always provided that such a scheme can be reconciled with the observation of good faith towards the native tribes, and the due protection of their real interests.

His Excellency does not at present see his way to extending the plan in question to the lands of the Six Nations and of the Mohawks in the Bay of Quinté, for which patents have issued, and which therefore stand on a different footing from those of the other tribes.

It is possible, however, that existing prejudices and fears on the part of these tribes may hereafter be got over, and that their consent may be obtained to some modification of their rights and claims; a power to make certain terms with them on obtaining such consent might at any rate form a portion of the Bill to be introduced.

His Excellency draws the attention of the Council to the several claims of the individual tribes set forth in the Report at pages 23, 27, 38, 39, 41, 44, 45, 46, 88, and 91.

(signed) *Edmund Head.*

Toronto, 11 May 1858.

(A).

1. After the 1st of January 1860, the Indian Department shall be a Provincial Department, with a permanent head appointed by the Governor General by the advice of his Council.

2. The President of the Committees of Council shall be the Minister responsible to Parliament for the management of the Indian Department, and the permanent head of such Department shall be his deputy, and shall give security.

3. A draft

3. A draft Bill shall be prepared embodying the following provisions :

1st. All Indian lands and reserves not patented by the Crown shall be vested in the President of the Council for the time being.

2d. Any reserve as a whole may be surveyed and sold at an appraised value for the benefit of the Indians themselves, subject to the condition that 25 acres be given under license of occupation to each head of a family; the licenses to be renewable for ever. Such 25 acres to include a reasonable quantity of woodland, in proportion to the number of the tribe, to be set apart for fuel, fencing, and building timber.

3d. That no such sale take place without the previous authority of the Governor in Council, on a Report from the Indian Department.

4th. All monies accruing from such sales shall (subject to the charge of 10 per cent. to be set apart in pursuance of the Order in Council of July 12, 1856) be invested, with the sanction of the Court of Chancery in Upper Canada, and the Chief Justice of the Superior Court in Lower Canada; and all charges in such investments shall be sanctioned in like manner.

5th. The expenses of the Indian Department after 1860, so far as they are not covered by the said 10 per cent., shall be defrayed from the ordinary revenue of the Province.

6th. The Government shall pay annually a sum of 2,000 dollars, to be devoted to the improvement of the Indians in civilisation and education.

7th. The pensions already granted shall be part of the charge.

8th. The Indian accounts shall be audited by the Provincial Auditor, as in any other Public Department.

4. The estimated charge in 1860, without the salary of the Superintendent General, may be put at 16,000 dollars; and the Reserve Fund will probably by that time produce 10,000 dollars, but will increase as instalments or sales are paid up and more land is sold.

— No. 9. —

(No. 73.)

COPY of a DESPATCH from Governor General the Right Honourable Sir *Edmund Head*, Bart., to the Right Honourable Lord *Stanley*, M. P.

Government House, Toronto, 5 June 1858.

(Received, 21 June 1858.)

(Answered, No. 14, 28 June 1858, p. 44.)

My Lord,

I HAVE the honour to acknowledge your Lordship's Despatch of 1st May, No. 38.\* I mistook the meaning of your preceding communication, because I did not contemplate the possibility of taking the 300 *l.* applicable to individuals of all tribes, some of whom have no property or estates, from the proceeds of estates or property belonging to particular tribes.

The enclosed Memorandum from the Superintendent General of Indian Affairs shows how many persons, at present recipients of the bounty, would, under the existing division of the Indian revenues, cease to enjoy it if it has to be provided for from the funds of the estates.

The same paper also shows the reductions of expenditure which have become necessary in consequence of the stoppage of the allowance for contingencies from the Imperial Grant. I fear that the reduction will bear hardly on the settlement on Manitoulin, and will greatly affect the condition of the Indians on that island, where they have no revenue of their own arising from land.

Considerable changes will have to be made if the funds of the several tribes are to be made liable to charges for the benefit of individuals belonging to other bands. I do not at present see my way towards bringing such a system, which in fact would be a sort of poor law, into operation, consistently with good faith to the various parties interested; some of whom ceded their property on the understanding that the proceeds were to be applied for their own benefit, and not for that of other tribes.

At the same time, if, as I infer from your Lordship's Despatch, the decision of Her Majesty's Government on these matters is final, I must endeavour to make the best of it until some other arrangement is settled.

I have, &c.

(signed) *Edmund Head*.

No. 9.

The Right Hon.  
Sir Edmund Head,  
Bart., to the Right  
Hon. Lord Stanley,  
M. P.

5 June 1858.

\* Page 43.



Enclosure in No. 9.

MEMORANDUM.

Encl. in No. 9.

THE Superintendent General of Indian Affairs has had the honour of perusing a Despatch of the Secretary of State for the Colonies, dated 1st May 1858, respecting the vote for the Indian Department.

If the decision be adhered to of directing the blankets and provisions to be provided for out of the Indian estate, the Superintendent General respectfully urges that such decision is tantamount to a stoppage of these gratuities, as a very large proportion of the blankets, as well as of the provisions, has been distributed among bands who have no funds of their own.

(A.)

Mr. Oliphant's  
Report, p. 8.  
Parliamentary  
Paper, 2 June 1856.

The annexed list exhibits the number of such Indians who were last year recipients of the gratuity. As they are not contributors in any shape to the "General Fund," they have no claim to share in its profits. All other sources of revenue are appropriated to particular tribes, who are entitled to the whole of the annual interest arising therefrom. The stoppage of the Imperial Grant would therefore exclude from the boon of the annual blankets the 166 individuals designated in the above-mentioned list, even if the bands who have funds consent so to appropriate a portion of their money to the relief of the aged members of their own tribes.

But the Superintendent General is convinced that the Indians will regard with deep dissatisfaction the withdrawal of a bounty which was granted "as a charity to the individuals, and a mark of consideration for the tribes to which they belong."

The reduction of the Imperial Grant has already seriously crippled the endeavours of the Indian Department to improve the condition of the bands under its charge; and the appended correspondence will show that the aid hitherto afforded for medicines to the Indians on the Manitoulin Islands, and in support of the schools (containing 145 children) there, has been obliged to be withdrawn.

(A.)

STATEMENT showing the Number of INDIANS receiving BLANKETS, who are not in the Receipt of any Income.

TRIBE.	Men.	Women.	TOTAL.
Ojibewas, Lake Huron and Superior - - -	26	37	63
Sandy Island - - - - -	2	2	4
Potowatomies of Walpole - - - - -	7	10	17
Munsees of Thames - - - - -	4	6	10
Chippewas of Point Pelée - - - - -	2	2	4
Iroquois, Lake of Two Mountains - - -	7	10	17
Abenakis of St. Francis - - - - -	12	13	25
Abenakis and Algonquin Indians of Becancour, and neighbourhood of Three Rivers - - -	6	- - -	6
Huron tribe of La Jeune Lorette - - -	7	7	14
Amlicite and Miemac Indians at Isle Verte - -	6	- - -	6
TOTAL - - -	79	87	166

(B.)

Indian Department, Manutowdning.  
30 April 1858.

Sir,  
I BEG leave to transmit to you the requisitions for articles necessary for the service of the department at this post for the current year.

S. J. Pennefather, Esq.,  
Superintendent General, Indian Affairs, Toronto.

I have, &c.  
(signed) Geo. Ironside,  
S. I. Affairs.

Indian Department, Toronto,  
4 June 1858.

Sir,

I AM directed to acknowledge your letter of the 30th April, transmitting requisitions for stationery for your office, as well as for the two schools on the Manitoulin Islands for medicines, and for articles for the service of the Indians.

In reply, I am to inform you, that the stationery required by you for official purposes will be forwarded to you without delay, but his Excellency greatly regrets that that asked for the schools, as well as the medicines, cannot be granted.

The cost of these has hitherto been defrayed from the Imperial grant; but, owing to the reductions which have been made in this, the amount previously accorded for contingencies has been struck out, and there is consequently now no portion of this grant properly applicable to the purchase of medicines or stationery.

As the Indians of Lake Huron do not in any way contribute to the general fund, no portion of it could, consistently with justice to other tribes, be devoted to any expenditure for them.

His Excellency is deeply sensible of the privation thus entailed upon the Indians by the refusal of these requisitions, and he especially deplores that so serious a check should be given to the instruction of the children attending the schools, but, under the circumstances above mentioned, no other course is open to him.

With respect to the remaining requisition, his Excellency would have no objection to sanction the purchase of these articles, provided the individual Indians requiring them agree before such purchase to the expenditure of their share of this year's annuity in such a manner. If, therefore, they forward, through you, such a requisition for axes, or other useful articles, on the understanding that they are to be paid for out of their annuity, the money can be so laid out for them; otherwise his Excellency has no funds at his disposal which can be allotted to this object.

I have, &c.  
(signed) R. T. Pennefather,  
Superintendent General.

Captain Ironside, Manitoulin Island.

— No 10. —

(No. 4.)

COPY of a DESPATCH from Governor General the Right Honourable Sir Edmund Head, Bart., to the Right Honourable Sir E. B. Lytton, Bart., M.P.

Government House, Toronto, C. W.,  
17 January 1859.

(Received, 31 January 1859.)

(Answered, No. 26, 11 February 1859, page 44.)

Sir,

I HAVE the honour to enclose the estimate for the expenses of the Indian Department for the year terminating 31st March 1860, together with a memorandum of the Superintendent General of Indian Affairs, relative to the reduction which has been made in the item of salaries.

I have, &c.  
(signed) Edmund Head.

Enclosure 1, in No. 10.

Indian Department, Toronto,  
10 January 1859.

THE Superintendent General, in submitting the accompanying estimate for approval, begs respectfully to draw his Excellency's attention to the item of salaries. Encl. 1, in No. 10.

The Despatch from the Secretary of State of the 15th March 1858 (No. 10), stated, that, "subject to any further light which may be derived from the Commissioners' Report, if it arrive in time, the grant for salaries will be reduced next year by one-half, and cease in the following year, leaving it to you, with the advice of the proper officers on the spot, to provide for the department out of the large estates which it administers."

The Commissioners' Report having proposed a scheme for the management of the Indian Estate irrespective of the Imperial grant, the estimate for the year 1859-60 has been prepared in accordance with the foregoing directions of Lord Stanley.

The Superintendent General, however, believes that no action has hitherto been taken by the provincial government upon the above-mentioned report. Under the circumstances, he would represent that there are no funds as yet to meet the deficiency caused by the reduction of the Imperial grant, and he would humbly urge on his Excellency that a representation



representation may be made to the Secretary of State for the continuance of the grant until provision is made for the payment of the officers of the department by the local government. If some arrangement of this sort be not made, the Superintendent General does not see how the Indian business is to be carried on.

His Excellency the Governor General,  
&c. &c. &c.

The whole respectfully submitted,  
R. T. Pennefather,  
Superintendent General.

Encl. 2, in No. 10. Enclosure 2, in No. 10.

ESTIMATE of the EXPENSES of the Indian Department in Canada, from the 1st April 1859 to the 31st March 1860.

ITEMS OF EXPENDITURE.	Amount in Sterling.	REMARKS.
	£. s. d.	
Salaries - - - - -	1,127 10 -	Reduced one-half, as per Despatch, No. 10, 15 March 1858.
Pensions to retired Officers and to Widows - - -	678 4 8	Addition of 277 l. 1 s. 8 d. currency to T. G. Anderson, Despatch 35, 23 April 1858.
Pensions to wounded Indians - - - - -	36 16 8	Reduction of 15 l. 13 s. 4 d. by the death of Portneuf.
Blankets for certain deserving aged and infirm Indians, and for relief in cases of necessity - - - - -	500 - -	Authorised by Despatch 14, 28 June 1858.
	£. 2,342 11 4	

Amounting to Two thousand three hundred and forty-two Pounds Eleven Shillings and Fourpence sterling.

Approved,  
(signed) Edmund Head.

Certified.  
(signed) S. Y. Chesley,  
Accountant.

By Command,  
(signed) R. T. Pennefather,  
Superintendent General.

Indian Department, Toronto,  
7 January 1859.

— No. 11. —

(No. 6.)

No. 11.  
The Right Hon.  
Sir Edmund Head,  
Bart., to the Right  
Hon. Sir E. B.  
Lytton, Bart., M. P.  
18 January 1859.

COPY of a DESPATCH from Governor General the Right Honourable  
Sir Edmund Head, Bart., to the Right Honourable Sir E. B. Lytton,  
Bart., M.P.

Government House, Toronto, C. W.  
18 January 1859.

(Received, 4 February 1859.)  
(Answered, No. 27, 11 February 1859, page 45.)

Sir,  
I HAVE the honour to enclose the Report of the Superintendent General of  
Indian Affairs for the year just ended of the department under his charge.

I have, &c.  
(signed) Edmund Head.

Enclosure in No. 11.

Indian Department, Toronto,  
11 January 1859.

Sir,  
I HAVE the honour to lay before your Excellency the following report on the condition of the Indian tribes in Canada, and the state of the department under my charge during the year 1858. Encl. in No. 11.

In the course of the past summer Captain T. G. Anderson, one of the oldest and most valuable officers in the service, retired upon a pension granted him by the liberality of Her Majesty's Government. Mr. W. R. Bartlett succeeds him as visiting superintendent in the eastern district of Upper Canada.

In consequence of the absence of pupils at the Manitowaning School, the teacher, Mr. Rawson, has received notice of his dismissal on the 1st July next. This reduction will cause a saving of 75*l.* sterling a year. The expenditure of the department has also been contracted by the stoppage of 400 dollars, formerly paid to the Deputy Receiver General for his share in superintending the Indian accounts.

The salary of the chief clerk at head quarters has been augmented by 200 dollars, as recommended by the Commissioners, and an additional allowance of 80 dollars has been granted to Mr. Assickennach since the increased rates of living made it impossible for him to subsist on his previous pay. There is thus, on the whole, a net saving of 485 dollars in the salaries for this year.

The blankets granted by the Imperial Government to the aged Indians have been distributed: the number of the recipients has been reduced by death from 516 to 465 since last year.

The "Moravian Tract," in the townships of Orford and Zone, was brought last autumn into the market. The scarcity of money in the country, and the consequent difficulties entailed on many of the inhabitants, acted most unfavourably on the sale. The land realised only 116,867  $\frac{75}{100}$  dollars, being an average of 6.30 dollars per acre, about one-half of what it was valued at two years ago. The instalments have, however, been well paid, and few, if any, forfeitures have taken place. There remain unsold 4,774 acres, valued at 30,076  $\frac{48}{100}$  dollars. I have, in accordance with your Excellency's commands, instructed the local superintendent to dispose of this by private sale as opportunity may occur, if he can get the upset price for the land. This has been found advisable, in consequence of the difficulty of preserving the timber from plunder. The band is settled on its new reserve, where houses are being erected for them.

I regret to say that I cannot speak favourably of the working of the industrial schools during the past year. The institution at Mount Elgin contains 42 pupils, while but 16 are inmates of that at Alnwick; of these, 12 belong to the Alnwick tribe, and two to the band at Rice Lake, only 9 miles distant.

I received remonstrances this autumn from every tribe that contributes to this latter school against the continuance of their subscription, amounting to 3,832  $\frac{40}{100}$  dollars annually. The Commissioners recommended the closing of this school, and suggested the appropriation of the building by Government to some other purpose. It is nearly, if not quite, useless to the Indians at present, as will appear from the annexed Table, showing the number of children and youths belonging to the bands which contribute to the school, with the actual proportion of scholars sent from each tribe.

NAME OF BAND.	Children, 1 to 14.	Youths, 14 to 21.	TOTAL.	Sent to the Alnwick School.
Saugeen - - - -	99	13	112	- - none.
Cape Croker - - -	114	11	125	- - none.
Colpoy's Bay - - -	35	1	36	- - none.
Beausoleil - - - -	91	16	107	1
Rama - - - - -	69	4	73	1
Snake Island - - -	73	5	78	- - none.
Skugog - - - - -	29	2	31	- - none.
Mud Lake - - - - -	43	2	45	- - none.
Rice Lake - - - - -	60	6	66	2
Alnwick - - - - -	91	4	95	12
	704	64	768	16



During the last Session of the Legislature notice was given by Mr. Christie, then member for East Brant, of a Bill to repeal the 13 & 14 Vict. c. 74, and 20 Vict. c. 26, on the ground that the protection afforded to the Indians by these Acts was used by individuals of the Six Nations as a method of defrauding their creditors, and that section 1 of the latter Act extended the immunity from legal proceedings to parties not affected by the Act of 1850.

It was, I presume, not deemed advisable that any legislation should take place while so many questions respecting the Indian Department were awaiting the action of the Executive. An arrangement was made by which the proposed Bill was withdrawn, and a Commission appointed for the investigation and settlement of such just and reasonable claims for debts contracted by the Six Nations as could have been recovered in court previous to the passage of the 20 Vict. c. 26, but which were cut off by that Act.

This Commission is now sitting, and has not yet reported. I fear, however, that it will be found that the claims of one sort and another made against individuals of these tribes amount to a very large sum. Applications have also been made to the department for payment of claims made against members of other bands, to the extent of some thousands of dollars, and there is no doubt that the alleged liabilities now brought forward do not include a great many outstanding accounts. It will be my duty hereafter to lay before your Excellency the result of the investigation which is now proceeding.

A grave question, however, arises : how far it is expedient to uphold the third clause of 13 & 14 Vict. c. 74.

This clause enacts, "That no person shall take any confession of judgment or warrant of attorney from any Indian within Upper Canada, or by means thereof, or otherwise howsoever obtain any judgment for any debt, or pretended debt, or upon any bond, bill, note, promise, or other contract whatsoever, unless such Indian shall be seised in fee-simple in his own sole right of real estate in Upper Canada, the title to which shall be derived directly or through others by letters patent from the Crown, and shall be assessed in respect of such real estate to the amount of 25*l.* or upwards."

Now, it appears, from the evidence already brought forward before Mr. Morgan, the Commissioner for investigating the claims against individuals of the Six Nations, that it is not the really destitute Indians whose names appear in the traders' books ; it is the reckless and improvident, who obtain things on credit. Money, too, is advanced largely on the orders of the chiefs, and articles have been supplied which could not be deemed necessities : for instance, in one case a bill is sent in for a set of silver-plated harness, supplied to an individual of the Six Nations.

Little consideration need be paid to the fact that there is always a lurking hope that the Government will not allow such debts to remain unpaid, and that it is on such expectation that credit is given. There can be no doubt that the merchants trading in this way are aware of the risk of non-payment, and charge proportionably to such risk. Their accounts, too, are in some cases sent in with 10% interest on the charges. There have been instances also where the articles furnished to the Indians are called by other names in the bills sent into this office. Thus, in one case, a requisition was made by a tribe for oxen, seeds, and agricultural implements, said to have been furnished them by a trader. The detailed bill, when called for, is found to be principally made up of "cash advances," "payments of chiefs' orders," "merchandise for goods account," and similar items.

It is the discovery of transactions of this character which causes the chief difficulty in the settlement of claims made against Indians. There may be, I have little doubt, *bonâ fide* instances of provisions and necessities supplied to prevent distress and starvation, and these I should be inclined to look more favourably on ; but it is indisputable that frequent attempts at fraud have been practised.

It appears to me, that were the clause in question modified, so as to protect the common property of the tribe, namely, the land, but to leave the personal property of the individual debtor liable to legal process, great advantages would be gained. Not only would the trader be free from the temptation of falsifying his accounts, by entering as provisions or necessities advances of money or goods of very different descriptions, but the Indian, not being able to obtain credit, would be forced to work for his livelihood, and adopt habits of self-dependence and industry.

Another point to which I respectfully beg to draw your Excellency's attention with reference to this is, that the protection of Indian lands is by the Acts 2 Vict. c. 15, and 13 & 14 Vict. c. 74, restricted to Commissioners appointed for that purpose. No emolument is attached to this office, so that it is difficult to prevail upon parties to accept the duties. The visiting superintendents are of course Commissioners, but their districts are so extensive as to render it impossible for them to examine every case of trespass reported to them. When they make their visits to the bands, their coming is known beforehand, and the offenders withdraw until after their departure. The same may be said for neglect of statute labour. It might also be well to extend the protection to lands surrendered by the Indians to be sold for their benefit, but which have not been so disposed of. It may fairly be argued, that if the land should be protected while the common property of a tribe, it is equally entitled to protection while in process of being prepared to be sold for their benefit. As the law now stands, the moment the treaty of cession is concluded, the land ceases to be within the provisions of the Acts above mentioned, and may be squatted on, and stripped of its timber with impunity, before it can be surveyed and brought into the market.

The Acts 3 Vict. c. 13, and 13 & 14 Vict. c. 74, s. 6, are likewise inconsistent. The former law enables any justice of the peace to fine in the amount of 20*l.* any person convicted of selling spirituous liquor to an Indian. The latter reduces the penalty to 5*l.*, but makes the offence

offence a misdemeanor; as such, it cannot be disposed of summarily, but has to be brought before a court of competent jurisdiction.

There is great difficulty in getting the witnesses together to appear before the court of quarter sessions, as the defendant has time to make arrangements whereby the witnesses are induced to stay away. Much trouble and expense are also involved. The infringer of the law, from these causes, frequently escapes with impunity. It appears, from the annexed copy of an opinion of the Attorney General, Canada West, that there is some doubt whether the earlier Act is in force or not, and that in his judgment legislation is advisable on this point. I believe that this most pernicious traffic could be more effectually checked if the power of punishment were left as provided by the 3 Vict. c. 13, namely, by summary proceedings before any justice of the peace, though the fine might perhaps without impropriety be reduced.

Much uneasiness is manifested by the Indians with reference to the course likely to be pursued with regard to the management of their affairs in future. A great council was held last autumn, in which the tribes of Upper Canada almost unanimously refused to surrender any more land. As the council was not called with the sanction of the Government, I did not attend it, and have abstained from noticing the representations made thereat.

As the Imperial grant for salaries will this year be reduced one-half, it would be a great advantage if the Executive Government could be induced to take some action on the scheme now before them for providing for the expenses of the Indian Department. There are no funds now available for supplying the deficiency caused by the withdrawal of the aid given by the British Government.

The amount invested in Consolidated Municipal Loan Fund Debentures on Indian account during the last year has been 33,541  $\frac{14}{100}$  dollars. As these securities have been at a discount, this sum procured debentures to the amount of 34,600 dollars, being a saving to the fund of 1058.86 dollars. There is in hand for the Upper Canadian tribes 17,500 dollars, which might be invested, besides 3,000 dollars interest on the Management Fund. There is also a sum of 12,364  $\frac{40}{100}$  dollars, being the accumulations of the Provincial Parliamentary grant for the Lower Canadian tribes, after providing for the expenses charged against this fund. This might be invested for their benefit should the Government sanction its application in this manner. The surplus accumulations were similarly invested by Order in Council in the year 1854.

Before closing this report, there is one point to which I beg to draw your Excellency's attention as likely to become, before long, of great importance to the Indians of the whole province, and especially the Eastern section.

Under the Fishery Act of last Session, many rivers are about to be leased as fishing stations, from which the Indians in Lower Canada have been in the habit of procuring a large part of their sustenance. The tribes, too, on the north shore of Lakes Huron and Superior and the Manitoulin Islands rely very much on the fisheries for their support. These, I understand, are also to be leased. Several tribes also, numbering some thousands of souls, are completely dependent on the stations of the Hudson's Bay Company, or "King's Posts, in Eastern Canada," for their supplies. Now that the King's Posts are going to be given up, and that the fisheries will be preserved by private individuals, who have no interest in the support of the Indians, I would respectfully urge the claims of the native tribes upon the Government. It is useless to expect them to devote themselves to agriculture, or settled pursuits. The inhospitality of the climate on the north shore of the Lower St. Lawrence, the poverty of the soil on the tracts allotted to the Indians, added to their own indolence and unsettled habits, render it impossible to entertain any well-grounded hope that the bands in that locality can, for many years to come, become independent. They are then, I think, fairly a charge upon the Government, and I would respectfully press that some provision may be made for them, as well as the indigent tribes in the north west, to save them from starvation, when their present means of existence are cut off.

The whole respectfully submitted.

(signed) *R. T. Pennefather,*

His Excellency the Governor General,  
&c. &c. &c.

Superintendent General.

Office of Attorney General for Upper Canada,  
Toronto, 17 November 1858.

Sir,

I HAVE the honour, by desire of Mr. Attorney General Macdonald, to acknowledge the reference, No. 10,807 of Mr. Thorburn's letter, desiring the Attorney General's opinion as to whether the 2d Vict. c. 13, s. 2, imposing a penalty of 20 £ on any person contravening the provisions of that Act, is repealed by 13 & 14 Vict. c. 74, s. 6, reducing the penalty for selling liquor to Indians to 5 £.

I am to inform you that the Attorney General thinks (with doubt) that the latter Act supersedes the former one, and that there should be legislation on the matter to settle the doubt.

I have, &c.

(signed) *H. Bernard.*

*R. T. Pennefather, Esq.*



— No. 12. —

No. 12.

The Right Hon.  
Sir Edmund Head,  
Bart., to the Duke  
of Newcastle.

30 April 1860.

(No. 36.)

COPY of a DESPATCH from Governor General the Right Honourable  
Sir *Edmund Head*, Bart., to the Duke of *Newcastle*.

Government House, Quebec, 30 April 1860.

(Received, 17 May 1860.)

My Lord Duke,

IN consequence of the withdrawal of the vote by the Imperial Parliament from the Indian Office in Canada, it has become necessary to provide for the transfer of the management of such office to the hands of some officer responsible to the Colonial Parliament, from whom any funds hereafter required will have to be derived.

\* *Vide* p. 37.

Accordingly, the Bill (of which a copy is enclosed\*) has been introduced into the Legislative Council by the Chief Commissioner of Crown Lands, and is now under discussion in the Legislative Assembly.

Your Grace will, I think, see that it makes no change whatever in the right of the Indian tribes, and provides such security as the nature of the case admits for consulting their wishes and interests in dealing with their reserved lands. I propose at any rate reserving this Bill (if it passes) for Her Majesty's special sanction.

I have, &amp;c.

(signed) *Edmund Head*.

— No. 13. —

No. 13.

The Right Hon.  
Sir Edmund Head,  
Bart., to the Duke  
of Newcastle.

9 May 1860.

(No. 42.)

COPY of a DESPATCH from Governor General the Right Honourable  
Sir *Edmund Head*, Bart., to the Duke of *Newcastle*.

Government House, Quebec, 9 May 1860.

(Received, 25 May 1860.)

My Lord Duke,

(Answered, No. 63, 16 June 1860, page 45.)

I HAVE the honour to enclose a petition addressed by the Indian tribes of Lakes Huron and Simcoe, in Upper Canada, to Her Most Gracious Majesty: I also forward a copy of the Report of the Superintendent General of Indian Affairs upon it.

I presume that, under the present circumstances, the matters touched upon in this document are such as will be left to be dealt with by the Provincial Government.

I have, &amp;c.

(signed) *Edmund Head*.

Enclosure 1, in No. 13.

Sir,

Indian Department, 4 May 1860.

Encl 1, in No. 13.

THE accompanying document has been numerously signed by the Chippewa Indians of the Saugeen, and Lakes Huron and Simcoe. Although it is quite irregular in its form, and was adopted at a council, which was not sanctioned by the department, I have nevertheless consented to lay it before you, as they expressed great anxiety I should do so.

At the same time I explained to the deputation which placed it in my hands that I feared any further trial to obtain a renewal of the presents for which they petition would be unsuccessful. Nevertheless I could wish that it were possible without impropriety to draw the attention of Her Majesty's Government to the destitute condition of such of the tribes as have no lands or funds of their own.

To these bands the withdrawal of the presents has been a great privation. The grant of a blanket, a gun, or a few pounds of powder, would in many cases, by affording protection from the inclemency of the weather, or by giving the means of obtaining a livelihood, alleviate much distress.

I fully appreciate the liberality of the Imperial authorities in granting the three hundred pounds for blankets, as suggested by Lord Bury; but the number was strictly limited, and no fresh names were to be added. There are therefore many aged and deserving Indians among the indigent bands who do not participate in this bounty, as it does not afford any means of meeting fresh cases of distress.

The other points in the memorial are,—

1st. A claim





1st. A claim to all surveyed and unsurveyed lands west and north of Lakes Simcoe and Conchiching, and the River Severn to Matchedash Bay, up to the boundary line of the lands surrendered to the Government in the year 1798, and following the boundary line of the lands surrendered to the Crown in 1815, to the carrying place; from thence to the Talbot River, the dividing line between Mosa and Thorah. They likewise claim all surveyed and unsurveyed lands east and north the above-named waters, till they come to the lands owned by other tribes. All the above-named they claim, with the exception of the lands on the Coldwater Road, surrendered by them to Sir Francis B. Head, in the year 1834.

They also claim the islands in Lake Simcoe, known by the following names, viz., Snake Island, Fox Island, and Georgiana Island. They likewise assert their claim to "all the islands in Lake Conchiching, with the exception of Pumpkin Island, lying conveniently to Orillia." They also claim the "Christian Island, Round Island, and Hoop Island, lying in Matchedash Bay, according to the last treaty of Captain Anderson," their late superintendent. They also claim "all the rest of the islands lying in Lakes Huron and Simcoe," in their names and tribes, because they have nothing to show the surrender, and as they received no remuneration for the same.

This part of the memorial, it will be seen, is addressed to Her Most Gracious Majesty.

2d. They request of your Excellency that there may be reserved for them the following tract of land:—

"Two townships, 12 miles square each, including Trading Lake," which they assert have never been surrendered to the Crown.

3d. In behalf of their brethren established at the Lake of Two Mountains, they represent that they owned a large tract of land in the Ottawa and adjoining districts, and that a part of these lands has been surveyed and sold to the whites, which they have not at any time ceded.

4th. The Cape Croker Indians complain respecting the title to their lands, and the loss of money due to them on the sales of their surrendered lands.

5th. The Lakes Huron and Simcoe Indians petition against the fishery law, and state that when they surrendered their lands to the Government, they did not sign over all the game and the fish, and that they think it no more than just that they should have the privilege of selling timber or stone off from their reserves.

With regard to the first point, a surrender is in the Indian department of the whole tract shown on the accompanying diagram, and coloured red. Another block, as will be seen, was purchased in 1798. A further extent was supposed (in 1815) to have been obtained in 1785. The land may also be held to be covered by the Robinson Treaty in the following words:—"From Penetanguishene to Sault Ste. Marie, and thence to Batchewananing Bay, on the northern shore of Lake Superior, together with the islands in the said lakes, opposite to the shores thereof, and inland to the height of land which separates the territory covered by the charter of the Honourable the Hudson's Bay Company from Canada, as well as all unconceded lands within the limits of Canada West, to which they have any just claim."

The Lakes Huron and Simcoe Indians, however, assert, that the tribes on the north shore had no right to cede hunting grounds, which were not occupied by themselves, but by the present petitioners. If this be so, then a portion of the territory south of the Severn River seems to be still unsurrendered.

The Executive Government, by accepting in 1856 a surrender from the Lakes Huron and Simcoe Indians of the islands in the Georgiana Bay, gives a sort of colour to their present claims.

A further doubt exists respecting the land lying between Lake Conchiching and Talbot River. No written surrender of this tract is in existence; but it appears, from the Commissioners' report in 1844, that after the surrender of the Coldwater tract in 1836, the Indians bought the 1,600 acres on which they now reside. This affords a presumption that they had previously given up their claim to the mainland on Lakes Conchiching and Simcoe, while they retained the islands. If this inference be correct, their present claim is unfounded.

Their request for two townships, of 12 miles square each, to be reserved for them round Trading Lake, is one for the consideration of your Excellency; but in my opinion it would not be for the substantial advantage of the Indians to grant it, while it would create an obstacle to the settlement of the back country. If acceded to at all, they should surrender all their land in the front in exchange for it.

In consideration of the claims pressed by the Indians of the Lake of Two Mountains, for compensation for their hunting grounds on the Ottawa River, which had been taken possession of by the white population before they were surrendered, or the Indian interest consulted in any way, the Executive Government granted to these bands, under the 14th and 15th Vict. c. 106, 45,750 acres on the River Desert. A certain number of the Algonquins have embraced the opportunity thus given to them of exchanging the sterile tract at the Lake of the Two Mountains for a fresh location, where they have formed the settlement of Maniwaki, and are beginning to apply themselves to agriculture.

With regard to the complaints of the Cape Croker tribe, a very brief explanation will show that they have no real grievance. The duplicate treaty, after being ratified by your Excellency, was returned to them; but as the acceptance by the Government of the sur-

render

render is contained in a Minute of the Executive Council, that document was filed in the Indian Department, instead of being entrusted to their care.

The licenses of occupation to individuals for their respective lots of 25 acres, are being prepared.

The scarcity of money throughout the country has of course caused some arrears in the payments on the lands sold in the Saugeen Peninsula : hence arises their suspicion of being robbed.

The fishery law has caused considerable dissatisfaction among the native tribes ; but an arrangement, which it is hoped will quiet their apprehensions, has been entered into with the Crown Land Department in their favour. By this arrangement the Commissioner of Crown Lands has agreed that fishery leases should be given to the visiting superintendents for the various bands of Indians in Canada West, at the spots most resorted to by the latter, at rents fixed by the Superintendent of Fisheries for Upper Canada, with the proviso, however, that so long as the Indians confine themselves to the limits fixed by the leases, and do not molest the other lessees, those rents will not be exacted. In effect, they really enjoy the privilege of free fishery for their own use, so long as they do not transgress the law.

The whole respectfully submitted.

His Excellency the Governor General,  
&c. &c. &c.

R. T. Pennefather,  
Superintendent-General.

#### Enclosure 2, in No. 13.

Encl. 2, in No. 13. By the Honourable Sir William Johnson, Bart., His Majesty's Superintendent of Indian Affairs for the Northern District of North America, Colonel of the Six United Nations, their Allies and Dependents, and of His Majesty's Council for the Province of New York, &c.,

#### A Proclamation.

WHEREAS I have received His Majesty's Royal Proclamation, given at the Court of St. James', the 11th day of October last, together with a letter from the Right Honourable Lords Commissioners for the Trade and Plantations, of the 10th of October last, signifying His Majesty's commands that I should cause the same to be forthwith made public in the several parts of my jurisdiction, and that I should strictly enjoin all persons whatever whom it might concern to pay a due obedience thereto on their parts, which Proclamation is in the words following :

By the King.

#### A Proclamation.

George R.

WHEREAS we have taken into our Royal consideration the extensive and valuable acquisitions in America secured to our Crown by the late definitive treaty of peace, concluded at Paris the 10th day of February last; and being desirous that all our loving subjects, as well of our kingdoms as of our Colonies in America, may avail themselves with due convenient speed of the great benefit and advantage which must accrue therefrom to their commerce, manufactures, and navigation, we have thought fit, with the advice of our Privy Council, to issue this our Royal Proclamation, hereby to publish and declare to all our loving subjects that we have, with the advice of our said Privy Council, granted our letters patent, under our great seal of Great Britain, to erect within the countries and islands ceded and confirmed to us by the said treaty four distinct and separate Governments, styled and called by the names of Quebec, East Florida, West Florida, and Grenada, and limited and bounded as following, viz. :

1st. The Government of Quebec, bounded on the Labrador coast by the River St. John, and from thence by a line drawn from the head of that river through the Lake St. John to the south end of the Lake Nipisin ; from whence the said line, crossing the River St. Lawrence and the Lake Champlain, in 45 degrees of north latitude, passes along the high lands which divide the rivers that empty themselves into the said River St. Lawrence, from those which fall into the sea, and also along the north coast of the Bay des Chaleurs and the coast of the Gulf of St. Lawrence to Cape Rosieres, and from thence, crossing the mouth of the River St. Lawrence, by the west end of the Island of Anticosti, terminates at the aforesaid River St. John.

2d. The Government of East Florida, bounded to the westward by the Gulf of Mexico and the Apolichicola River, to the northward by a line drawn from the part of the said river where the Chatahouclus and Flint Rivers meet to the source of St. Mary's River, and by the course of the said river to the Atlantic Ocean, and to the eastward and southward by the Atlantic Ocean and the Gulf of Florida, including all islands within six leagues of the sea coast.

3d. The



3d. The Government of West Florida, bounded to the southward by the Gulf of Mexico, including all islands within six leagues of the coast, from the River Apolachicola to the Lake Pouchetrain, to the westward by the said lake to the Lake Mouripas and the River Mississippi, to the northward, by a line drawn due east from that part of the River Mississippi which lies in 31 degrees north latitude to the River Apolachicola or Chatahouche, and to the eastward by the said river.

4th. The Government of Grenada, comprehending the island of that name, together with the Grenadas and the Islands of Dominico, St. Vincent, and Tobago.

And to the end that the open and free fishery of our subjects may be extended to and carried on upon the coast of Labrador and the adjacent islands, we have thought fit, with the advice of our said Privy Council, to put all that coast from the River St. John to Hudson's Straits, together with all the Islands of Anticosti and Magdelaine, and other smaller islands lying upon the said coast, under the care and inspection of our Governor of Newfoundland.

We have also, with the advice of our Privy Council, thought fit to annex the Islands of St. John's and Cape Briton or Isle Royal, with the lesser islands adjacent thereto, to our Government of Nova Scotia.

We have, also, with the advice of our Privy Council aforesaid, annexed to our province of Georgia all the lands lying between the River Altamaha and St. Mary's.

And whereas it will greatly contribute to the speedy settling our said new Governments that our loving subjects should be informed of our paternal care for the security of the liberties and properties of those who are and shall become inhabitants thereof, we have thought fit to publish and declare, by this our proclamation, that we have in the letter patents under our Great Seal of Great Britain, by which the said Governments are constituted, giving express power and direction to our governors of our said colonies respectively that so soon as the state and circumstances of the said colonies will admit thereof, they shall, with the advice and consent of the members of our Council, summon and call general assemblies within the said Governments respectively, in such a manner and form as is used and directed in those colonies and provinces in America which are under our immediate government; and we have also given power to the said governors, with the consent of our councils and the representative of the people so to be summoned as aforesaid, to make, constitute, and ordain laws, statutes, and ordinances for the public peace, welfare, and good government of our said colonies, and of the people and inhabitants thereof as near as may be agreeable to the laws of England, and under such regulations and restrictions as are used in other colonies; and in the meantime, and until such assemblies can be called as aforesaid, all persons inhabiting in or resorting to our said colonies may confide in our Royal protection for the enjoyment of the benefit of the laws of our realm of England, for which purpose we have given power under our Great Seal to the governors of our said colonies respectively to erect and constitute, with the advice of our said councils respectively, courts of judicature and public justice within our said colonies, for the hearing and determining all causes, as well criminal as civil, according to law and equity, and as near as may be agreeable to the laws of England, with liberty to all persons who may think themselves aggrieved by the sentences of such courts in all civil cases or trials, under the usual limitations and restrictions to us, in our Privy Council.

We have also thought fit, with the advice of our Privy Council as aforesaid, to give unto the governor and councils of our said three new colonies upon the continent, full power and authority to settle and agree with the inhabitants of our said new colonies, or with any other persons who shall resort thereto, for such lands, tenements, and hereditaments as are now or hereafter shall be in our power to dispose of, and them to grant to any such person or persons, upon such terms and under such moderate quit rents, services, and acknowledgments as have been appointed and settled in our other colonies, and under such other conditions as shall appear to us to be necessary and expedient for the advantage of the grantees, and the improvement and settlement of our said colonies.

And whereas we are desirous upon all occasions to testify our Royal sense and approbation of the conduct and bravery of the officers and soldiers of our armies, and to reward the same, we do hereby command and empower our governors of our three new colonies, and all other our governors of our several provinces on the continent of North America, to grant, without fee or reward, to such reduced officers as have served in North America during the late war, and to such private soldiers as have been or shall be disbanded in America, and are actually residing there, and shall personally apply for the same, the following quantities of lands, subject at the expiration of 10 years to the same quit rents as other lands are subject to in the province within which they are granted, as also subject to the same conditions of cultivation and improvements:

To every person having the rank of a field officer, 5,000 acres; to every captain 3,000 acres; to every subaltern or staff officer 2,000 acres; to every non-commission officer 200 acres; to every private man 50 acres. We do likewise authorise and require the Governors and Commanders in Chief of all our said colonies upon the continent of North America, to grant the like quantities of land, and upon the same condition to such reduced officers of our navy of the rank as served on board our ships of war in North America at the times of the reduction of Louisbourg and Quebec in the late war, and who shall personally apply to our respective governors for such grants.

And whereas it is just and reasonable, and essential to our interest and the security of our colonies that the several nations or tribes of Indians with whom we are connected, and who live under our protection, should not be molested or disturbed in the possession of

such

such parts of our dominions and territories as, not having been ceded to or purchased by us, are reserved to them, or any of them, as their hunting grounds; we do, therefore, with the advice of our Privy Council, declare it to be our Royal will and pleasure that no Governor or Commander in Chief in any of our colonies of Quebec, East Florida, or West Florida do presume, upon any pretence whatever, to grant warrants, or survey or pass any patents for lands beyond the bounds of their respective Governments as described in their commission; as also, that no Governor or Commander in Chief in any of our other colonies or plantations in America do presume for the present, and until our further pleasure be known, to grant warrants of survey or pass patents for any lands beyond the heads or sources of any of the rivers which fall into the Atlantic Ocean, from the west and north-west, or upon any lands whatever which, not having been ceded to or purchased by us as aforesaid, are reserved to the said Indians, or any of them; and we do further declare it to be our Royal will and pleasure for the present as aforesaid, to reserve under our sovereignty and protection, and dominion, for the use of the said Indians, all the lands and territories not included within the limits of our said three new Governments, or within the limits of the territory granted to the Hudson's Bay Company, as also all the lands and territories lying to the westward of the source of the rivers which fall into the sea from the west and north-west as aforesaid. And we do hereby strictly forbid, on pain of our displeasure, all our loving subjects from making any purchases or settlements whatever, or taking possession of any of the lands above reserved, without our especial leave and license for that purpose first obtained.

And we do further strictly enjoin and require all persons whatever who have either wilfully or inadvertently seated themselves upon any land within the countries above described, or upon any other lands, which, not having been ceded to or purchased by us, are still reserved to the said Indians as aforesaid, forthwith to remove themselves from such settlements.

And whereas great frauds and abuses have been committed in the purchasing lands of the Indians, to the great prejudice of our interests, and to the great dissatisfaction of the said Indians; in order, therefore, to prevent such irregularities for the future, and to the end that the Indians may be convinced of our justice and determined resolutions to remove all reasonable cause of discontent, we do, with the advice of our Privy Council, strictly enjoin and require that no private person do presume to make any purchase from the said Indians of any lands reserved to the said Indians, within those parts of our colonies where we have thought proper to allow settlements; but that if at any time any of the said Indians should be inclined to dispose of the said lands, the same shall be purchased only for us, in our name at some public meeting or assembly of the said Indians, to be held for that purpose, by the Governor or Commander in Chief of our colonies respectively, within which they shall lie: and in case they shall lie within the limits of any proprietary Government, they shall be purchased only for the use and in the name of such proprietaries, conformable to such directions and instructions as we or they shall think proper to give for that purpose; and we do, by the advice of our Privy Council declare and enjoin that the trade with the said Indians shall be free and open to all our subjects whatever, provided that every person who may incline to trade with the said Indians do take out a license for carrying on such trade from the Governor or Commander in Chief of any of our colonies respectively, where such person shall reside, and also give security to observe such regulations as we shall at any time think fit, by ourselves or by our commissioners to be appointed for this purpose, to direct and appoint for the benefit of that said trade; and we do hereby authorize, enjoin, and require the Governors, Commanders in Chief of all our colonies respectively, as well those under our immediate government, as those under the government and direction of proprietaries, to grant such license without fee or reward, taking especial care to insert therein a condition that such license shall be void and the security forfeited in case the person to whom the same is granted shall refuse or neglect to observe such regulations as we shall think proper to prescribe, as aforesaid.

And we do further expressly enjoin and require all officers whatever, as well military as those employed in the management and direction of Indian affairs within the territories reserved as aforesaid, for the use of the said Indians, to seize and apprehend all persons whatever, who standing charged with treasons, misprisions of treason, murders, or other felonies or misdemeanors shall, fly from justice and take refuge in the said territory, and to send them under proper guard to the colony where the crime was committed of which they stand accused in order to take their trial for the same.

Given at our Court at St. James's the 7th day of October 1763, in the 3d year of our reign.  
God save the King.

I do, in obedience to His Majesty's command, give this public notice to all persons residing within my jurisdiction (being that country justly claimed by the Six Nations, their allies and dependants) that I will, to the utmost of my power, cause the same to be observed, and I do strictly enjoin all such persons to pay due obedience thereto.

Given under my hand and seal at arms, at Johnson Hall, the 24th day of December 1763, in the 4th year of the reign of our Sovereign Lord, George the Third, by the Grace of God, of Great Britain, France and Ireland, King, Defender of the Faith, and "so forth."

By order of Sir William Johnson,  
Witham Marsh,  
Secretary for Indian affairs.

*William Johnson.*

God save the King.



To our Great Mother Her Most Gracious Majesty the Queen of Great Britain,  
&c. &c. &c.

WE, your Majesty's dutiful and loyal subjects, the Chippewa Indians, of Lakes Huron and Simcoe, of Western Canada, beg leave to address your Most Gracious Majesty on the subject of your Royal Bounty. When we ceded our lands to the Crown, our Great Father, the Governor of the Province, promised us our presents as long as the sun shines, the grass grows, and the waters run. When we heard the decision of your Majesty's Government in the year of our Lord 1845, viz., that all children born after the 1st day of April, in the year A. D. 1846, should be excluded from receiving presents, we felt very sorry for our children, but when we were informed by our Great Father, the Earl of Elgin, the Governor General, that your Majesty's Royal bounty was about to be withheld, and we were to receive no more presents, this made us feel very sick in our hearts. When our Great Father, the Governor was in trouble, and the enemy threatened to invade these Provinces, he called upon us his red children, and again renewed his promises. He said, "If you will turn out and help me in the war against my enemies, your presents shall be continued to you as long as the sun shines, the grass grows, and the waters run." We joined the army, helped to drive the enemy from our shores, and many of our fathers died, and brethren bled; and when our presents were stopped, we were astonished; we remembered the promise, we looked up to the sun, still shining bright as ever, we turned our eyes downward to the grass, still the grass looked fresh and green; we cast our eyes over the beautiful waters, they continue to flow as usual; we again think of our Great Father's promises, and it troubles us very much; and we are constrained to appeal to our Great Mother, and pray that your most gracious Majesty will again grant your Royal Bounty, and restore to your poor red children these presents as in former years.

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To our Great Mother Her Most Gracious Majesty the Queen of Great Britain, &c. &c. &c.

WE are your Majesty's most dutiful and loyal subjects; the Chippewa Indians of Lakes Huron and Simcoe beg leave to address your most gracious Majesty respecting our lands.

We have a claim to all surveyed and unsurveyed lands west and north of Lake Simcoe and Concheching and the River Severn, to Machedash Bay, up to the boundary line of the lands surrendered to the Government in the year 1798, and following the boundary line of the lands surrendered to the Crown in the year 1815, to the carrying place, from thence to the Talbot River, the dividing line between Mara and Thora. We likewise claim all surveyed and unsurveyed lands east and north the above-named waters, till we come to the lands owned by other tribes. All the above-named we claim, with the exception of the lands on the Cold Water Road, surrendered by us to Sir Francis B. Head in the year 1836. We also claim the Islands in Lake Simcoe, known by the following, viz.: Snake Island, Fox Island, and Georgiana Island. We likewise claim all the islands in Lake Concheching, with the exception of Pumpkin Island, lying conveniently to Orillia. We also claim the Christian Island, Round Island, and Hoop Island, lying at Machedash Bay. According to the last treaty of Captain Anderson, our late superintendent, we also claim all the rest of the islands lying in Lakes Huron and Simcoe, in our names and tribes.

Because there is nothing to show the surrender, and as we received no remuneration for the same, we therefore take this opportunity of expressing our attachment to your Majesty's person and Government, humbly hoping your most gracious Majesty will be pleased to grant the prayer of our petition, and your petitioners, as in duty bound, will ever pray for the blessing of the Great Spirit to rest upon you and your Royal Consort, His Excellency Prince Albert, and all the Royal family.

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To our Great Father the Governor General of British North America, &c. &c. &c.

WE your red children, the Chippewa Indians of Lakes Huron and Simcoe, comprising the following bands, viz.: Colpoy's Bay, Beausoleil Island, Rama, Snake Island, have agreed in council to request your Excellency to reserve the following tract of land: two townships, 12 miles square, each including Trading Lake. Our lands are nearly all gone from our hands: we are hoping, some future day, to collect our bands together, and invite others who may be disposed to join our tribe.

We have selected lands which we have never surrendered to the Crown. It is altogether unoccupied by white men, there being none within 20 miles of it.

Both the land and fishing are well adapted for an Indian settlement, lying 20 miles north-east from Merskoko Lake.

This land is not surveyed. We wish to have it deeded to our children's children for ever.

We respectfully submit the above for your Excellency's consideration, and humbly pray you will grant our request.

To our Great Mother Her Most Gracious Majesty the Queen of Great Britain,  
&c. &c. &c.

WE, your dutiful and loyal subjects, the Chippewa Indians of Lakes Huron and Simcoe, of Western Canada, in council assembled, at Rama this 8th day of July, A. D. 1859, beg leave to address your Most Gracious Majesty in behalf of our brethren, the tribes established at the lake of Two Mountains, who stated that they owned a large tract of land in the Ottawa and adjoining districts. A part of these lands has been surveyed and sold to the whites. They say that they have not at any time ceded any of their lands to the Crown; they say they are very poor.

We humbly pray that your most Gracious Majesty will take their cause into your serious consideration, as they think no more than just that they should receive some remuneration for their lands as well as their brethren of the lakes Huron and Simcoe tribes. The above-named lands have been their hunting grounds, their fathers, and forefathers. And we do further certify that the above-mentioned lands were owned by the said Indians, their fathers and forefathers.

We humbly pray that your Most Gracious Majesty will grant the prayer of our petition, and your petitioners will, as in duty bound, ever pray, for the blessing of the Great Spirit to rest upon you and your Royal Consort, his Excellency Prince Albert, and all the Royal family.

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To his Excellency the Governor General of British North America, &c. &c. &c.

WE, the Chippewa Indians belonging to the Cape Broke band, beg most humbly to approach your Excellency through W. R. Bartlett, S. I. affairs:—

1st. With regard to the last surrender we made to the Crown, the Superintendent General promised us that he would give us a good title for the reserve where we was to go, and he gave us one. We showed it to several gentlemen, and they say that it is not worth anything, on account of a statement made therein which that unless the Governor's seal and signature be there it shall be so.

2d. Since we have surrendered our Peninsula we have not received money that would be equal to the amount received by the sale of the lands, and we are losing monies through somewhere or other. To this we beg your Excellency's most serious consideration. And we will, as in duty bound, ever pray.

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To our Great Father the Governor General of the United Provinces of British North America, &c. &c. &c.

WE, your red children the Chippewa Indians of Lakes Huron and Simcoe, in council assembled at Rama, this 9th day of July 1859. We were astonished when we heard from our superintendent, W. R. Bartlett, Esq., that there was a law made to authorise a superintendent of fisheries to rent our fishing grounds without our consent. We were told if we wished to reserve them for our own use we must apply to the superintendent, and pay a rent, or run the risk of being deprived of them. When we surrendered our lands to the Government we did not sign over all the game and the fish. Indians have had always the privilege of hunting wherever they pleased. Again, when we surrendered our lands to the Government, we do not say you must not cut down or sell the timber, nor sell the stone. We think no more than just that we should have the privilege of selling timber or stone off from our own reserves, if we have the opportunity of doing so to advantage.

We humbly submit the above statement to your Excellency's consideration.

(Here follow 77 signatures.)

Council House, Rama Indian Village,  
11 July 1859.

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## — No. 14. —

(No. 48.)

COPY of a DESPATCH from Governor General the Right Honourable  
Sir *Edmund Head*, Bart., to the Duke of *Newcastle*,

Government House, Quebec, 18 May 1860.

(Received, 1 June 1860.)

(Answered, No. 85, 14 July 1860, page 46.)

My Lord Duke,

I HAVE the honour to enclose a certified copy of the Indian Lands Management Bill, which will be reserved at the close of the Session, for the special expression of Her Majesty's pleasure thereon.

Your Grace will perceive that the 1st of July is the day fixed for the transfer of the Indian Department to the Provincial Government; and as being near at hand, I have to request that the Bill may be submitted to the Queen with as little delay as practicable.

I have, &c.

(signed) *Edmund Head*.

*P.S.*—The Session of the Legislature will be closed, and the Bill reserved on the same day that this Despatch leaves, but the mail closes at an earlier hour than that fixed for the prorogation.—*E. H.*

No. 14.  
Right Hon. Sir E.  
Head, Bart., to the  
Duke of New-  
castle.  
18 May 1860.

## — No. 15. —

(No. 49.)

COPY of a DESPATCH from Governor General the Right Honourable  
Sir *Edmund Head*, Bart., to the Duke of *Newcastle*.

Government House, Quebec, 19 May 1860.

(Received, 4 June 1860.)

(Answered, No. 85, 14 July 1860, page 46.)

My Lord Duke,

REFERRING to my Despatch of yesterday, No. 48,\* I have now the honour to enclose an authenticated copy of the Indian Lands Management Bill, as reserved by me this day, at the closing of the Legislative Session.

I have, &c.

(signed) *Edmund Head*.

No. 15.  
Right Hon. Sir E.  
Head, Bart., to the  
Duke of New-  
castle.  
19 May 1860.

\* *Supra*.

## Enclosure in No. 15.

## AN ACT respecting the Management of the Indian Lands and Property.

HER Majesty, by and with the advice and consent of the Legislative Council and Assembly of Canada, enacts as follows:—

1. From and after the 1st day of July next, the Commissioner of Crown Lands, for the time being, shall be Chief Superintendent of Indian affairs.

2. All lands reserved for the Indians, or for any tribe or band of Indians, or held in trust for their benefit, shall be deemed to be reserved and held for the same purposes as before the passing of this Act, but subject to its provisions.

3. All moneys or securities of any kind applicable to the support or benefit of the Indians or any tribe or band of Indians, and all moneys accrued, or hereafter to accrue, from the sale of any lands reserved or held in trust as aforesaid, shall, subject to the provisions of this Act, be applicable to the same purposes, and be dealt with in the same manner as they might have been applied to or dealt with before the passing of this Act.

4. No release or surrender of lands reserved for the use of Indians, or of any tribe or band of Indians, shall be valid or binding except on the following conditions:—

1. Such release or surrender shall be assented to by the chief, or if more than one chief by a majority of the chiefs of the tribe or band of Indians, assembled at a meeting or council of the tribe or band, summoned for that purpose, according to their rules, and entitled under this Act to vote thereat, and held in the presence of an officer duly authorised to attend such council by the Commissioner of Crown Lands; provided always, that no chief or Indian shall be entitled to vote or be present at such council unless he habitually resides on or near the land in question.

2. The

2. The fact that such a release or surrender has been assented to by the chief of such tribe, or if more than one by a majority of the chiefs entitled to vote at such council or meeting, shall be certified by the County Court Judge, or the judge or stipendiary magistrate of the district or county within which the lands lie, and by the officer authorised to attend by the Commissioner of Crown Lands, and when so certified as aforesaid, shall be transmitted to the Commissioner of Crown Lands by such judge or stipendiary magistrate, and shall be submitted to the Governor in Council for acceptance or refusal.

5. It shall not be lawful to introduce, at any council or meeting of Indians held for the purpose of discussing, or of assenting to a release or surrender of lands, strong or intoxicating liquors of any kind; and any person who shall introduce at such meeting, and any agent or officer employed by the Commissioner of Crown Lands, or by the Governor in Council, who shall introduce, allow or countenance by his presence the use of such liquors before, at, or after any such council or meeting, shall forfeit 200 dollars, recoverable by action in any of the superior courts of law, half of which penalty shall go to the informer.

6. Nothing in this Act contained shall make a release or surrender of lands necessary in cases in which such release or surrender would not have been necessary before the passing of this Act, or shall render valid any release or surrender other than to the Crown.

7. The Governor in Council may, from time to time, declare the provisions of the Act respecting the sale and management of the public lands, passed in the present session, or of the 23d chapter of the Consolidated Statutes of Canada, intituled, "An Act respecting the Sale and Management of the Timber on Public Lands," or any of such provisions, to apply to Indian lands, or to the timber on Indian lands, and the same shall thereupon apply and have effect as if they were expressly recited or embodied in this Act.

8. The Governor in Council may, subject to the provisions of this Act, direct how, and in what manner, and by whom, the moneys arising from sales of Indian lands and from the property held, or to be held, in trust for the Indians, shall be invested from time to time, and how the payments to which the Indians may be entitled shall be made, and shall provide for the general management of such lands, money, and property, and what per centage or proportion thereof shall be set apart, from time to time, to cover the cost of, and attendant upon such management under the provisions of this Act, and for the construction or repair of roads passing through such lands, and by way of contribution to schools frequented by such Indians.

9. The Governor may, from time to time, appoint officers and agents to carry out this Act, and Orders in Council under it, which officers and agents shall be paid in such manner and at such rates as the Governor in Council may direct.

10. Nothing in this Act contained shall affect the provisions of the ninth chapter of the Consolidated Statutes of Canada, intituled: "An Act respecting the civilisation and enfranchisement of certain Indians," save and except that the same shall hereafter be read and construed as if the words, "the Commissioner of Crown Lands" were substituted for the words "the Superintendent General of Indian Affairs" wherever they occur in the said chapter, nor of any other Act when the same is inconsistent with this Act.

11. The judge, or any one of the judges of the Superior Court for Lower Canada, to whom any district or county in Lower Canada has been last prescribed or assigned by the Governor, shall be deemed to be the judge of such district or county for all the purposes of this Act.

I certify the above to be a true copy of the Bill passed by the Legislative Council and Legislative Assembly of Canada, in the third Session of the Sixth Provincial Parliament of Canada, and reserved by his Excellency the Governor General for the signification of Her Majesty's pleasure thereon, on Saturday the 19th day of May 1860.

*J. F. Taylor,*  
Clerk Leg. Council.

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## Despatches from the Secretary of State.

## — No. 1. —

(No. 130.)

COPY of a DESPATCH from the Right Honourable *H. Labouchere*, M.P., to  
Governor General Sir *Edmund Head*, Bart.

Sir,

Downing-street, 22 August 1856.

I HAVE to acknowledge your Despatch, No. 112,\* of the 22d July, reporting  
the appointment of a Commission of Inquiry into Indian Affairs in Canada.

My Despatch of the 11th July having crossed the one from you now under  
acknowledgment, it will be sufficient that I refer you, on the present occasion, to  
that Despatch.

I have, &c.  
(signed) *H. Labouchere*.

No. 1.  
Right Hon. H.  
Labouchere, M.P.,  
to Governor  
General  
Sir E. Head, Bart.  
22 August 1856.  
\* Page 1.

## — No. 2. —

(No. 181.)

COPY of a DESPATCH from the Right Honourable *H. Labouchere*, M.P., to  
Governor General Sir *Edmund Head*, Bart.

Sir,

Downing-street, 8 December 1856.

I HAVE to acknowledge the receipt of your Despatch, No. 152,† of the 4th  
November, enclosing a copy of a Report of the Commission appointed to inquire  
into the affairs of the Indians, on the Moravian Reserve in Western Canada.

I approve of your dealing with this reserve in the way you suggest, and you  
will therefore act upon the advice of the Commissioners, by directing the sale of  
the lands, and by applying the proceeds to the benefit of the Indians interested  
therein.

I have, &c.  
(signed) *H. Labouchere*.

No. 2.  
Right Hon. H.  
Labouchere, M.P.,  
to Governor  
General  
Sir E. Head, Bart.  
8 December 1856.  
† Page 2.

## — No. 3. —

(No. 6.)

COPY of a DESPATCH from the Right Honourable *H. Labouchere*, M.P., to  
Governor General Sir *Edmund Head*, Bart.

Sir,

Downing-street, 2 January 1857.

I HAVE had the honour to receive your Despatch, No. 162,‡ of the 11th of  
December, accompanied by the annual report of the Superintendent General of  
Indian Affairs. I have to acknowledge the useful information supplied by the  
statistical and other returns furnished with this report.

The fact of the very large amount produced by the first sale of Indian lands  
in the Saugeen Peninsula confirms the views which I have formerly expressed,  
of the propriety of calling on the Indian Department to provide for its own  
expenses out of the proceeds of Indian property. In order, however, to allow full  
time for preparing for the requisite changes, as well as to afford Her Majesty's  
Government an opportunity of considering the report of the Commission of  
Inquiry

No. 3.  
Right Hon. Sir H.  
Labouchere, M.P.,  
to Governor  
General  
Sir E. Head, Bart  
2 January 1857.  
‡ Page 3.

\* *Vide House of Commons Paper, No. 247, of 1856, page 39.*

Inquiry appointed by you, I have not reduced the amount of the aid required from Parliament this year below that indicated in my Despatch, No. 42,\* of the 21st of February last. I enclose a copy of the estimate, in the form in which it will be submitted to Parliament. You will see that the same sums are inserted for salaries as last year; that the amount asked for pensions corresponds with the return contained in the report now received from you; and that a small addition is made to the sum taken last year for provisions and gunpowder, in order to provide for the cost of rather more than 500 blankets, to be given to aged Indians. No item is inserted this year for contingencies, as it is considered that they ought to be provided for out of local resources.

I have, &c.  
(signed) *H. Labouchere.*

Enclosure in No. 3.

ESTIMATE of the Amount required to defray the Expenses of the Indian Department, Canada, for the Year ending the 31st of March 1858.

Three Thousand One Hundred Pounds.

	£.	s.	d.
Salaries - - - - -	2,255	-	-
Pensions - - - - -	215	-	-
Provisions and gunpowder for the use of Indians who live by the chase - - - - -	630	-	-
Blankets for aged Indians - - - - -			
	£.	3,100	-

The amount of this Estimate last year was 4,713*l.* The following reductions have been made:—

	£.	s.	d.
Pensions - - - - -	15	-	-
Presents - - - - -	1,100	-	-
Office hire, contingencies, &c. - - - - -	750	-	-
	£.	1,865	-
Added for blankets to aged Indians - - - - -	252	-	-
Net Decrease - - - - -	£.	1,613	-

— No. 4. —

(No. 9.)

No. 4.  
Right Hon. H.  
Labouchere, M.P.,  
to Governor  
General  
Sir E. Head, Bart.  
7 January 1857.

COPY of a DESPATCH from the Right Honourable *H. Labouchere, M.P.*, to Governor General Sir *Edmund Head, Bart.*

Sir,

Downing-street, 7 January 1857.

I HAVE received your Despatch, No. 171,\* of the 20th of December, accompanied by an estimate of the expense of the Indian Department for the year ending the 31st of March 1858.

In order to avoid inconvenience to the department I will adopt this estimate for the approaching year, instead of the one contained in my recent despatch, No. 6,† of the 2d of January. But you will understand, that after the evidence which has now been given of the ample resources which may be drawn from the Indian

\* Page 9.

† Page 39.



Indian estates, it will be necessary that a very large reduction indeed should be made in this estimate next year. On this subject I shall await with interest the report of the Commission of Inquiry which you have appointed, anticipating that it will very soon be found practicable to extinguish altogether the Parliamentary grant.

I have, &c.  
(signed) *H. Labouchere.*

## — No. 5. —

(No. 2.)

COPY of a DESPATCH from the Right Honourable *H. Labouchere*, M. P., to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 4 January 1858.

I HAVE to acknowledge the receipt of your Despatch, No. 104,\* of the 4th December, enclosing a copy of a letter from the Superintendent of Indian Affairs, reporting the substance of an address from a deputation of the principal chiefs of the Six Nations, expressing their sympathy with English interests in India, and their readiness to raise a corps among their own people whenever their services may be called for.

I have to request you to cause to be conveyed to the chiefs the expression of satisfaction with which Her Majesty's Government have received this assurance of their patriotism and their loyalty and attachment to Her Majesty.

I have, &c.  
(signed) *H. Labouchere.*

## — No. 6. —

(No. 11.)

COPY of a DESPATCH from the Right Honourable *H. Labouchere*, M. P., to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 22 January 1858.

IN answer to your Despatch, No. 1,† of the 2d of January, I have the honour to inform you that I shall recommend the Lords Commissioners of the Treasury to submit to Parliament this year the Estimate proposed for the Indian Department, amounting to 3,388 *l.* I trust that the expected report from the Commissioners for the investigation of matters connected with this Department, will soon be received, and that it will include a scheme of some satisfactory provision on the spot for the salaries and expenses of the Indian establishment, as the demands on Parliament for the purpose cannot much longer be maintained.

I have, &c.  
(signed) *H. Labouchere.*

## — No. 7. —

(No. 10.)

COPY of a DESPATCH from the Right Honourable Lord *Stanley* to Governor General the Right Honourable Sir *E. Head*, Bart.

Sir,

Downing-street, 15 March 1858.

WITH reference to your Despatch, No. 1,‡ of the 2d of January, and to my predecessor's answer, No. 11,§ of the 22d of the same month, upon the expenses of the Indian Department, I enclose, for your information, the copy of a letter from the Treasury.

595.

I have

No. 5.  
Right Hon. H.  
Labouchere, M. P.,  
to the Right Hon.  
Sir E. Head, Bart.  
4 January 1858.  
\* Page 10.

No. 6.  
Right Hon. H.  
Labouchere, M. P.,  
to the Right Hon.  
Sir E. Head, Bart.  
22 January 1858.  
† Page 11.

No. 7.  
Right Hon. Lord  
Stanley to the  
Right Hon. Sir E.  
Head, Bart.  
15 March 1858.  
8 February 1858.

Page 11.  
§ Page 41.

I have stated to their Lordships, in reply, that from the concluding paragraph of the Report of the Superintendent General, it is evident that the two large sums inserted by the Deputy Commissary General, as Parliamentary grants for the year ending the 31st March 1858, for Canada East and Canada West, in fact, represents the amount left undrawn up to that date, upon former estimates for several years past. But I have to inform you that no such amounts saved in a long course of former years can, consistently with established rules, be used in subsequent years. You will so acquaint the Superintendent General and the Deputy Commissary General, who will, I presume, be also instructed to the same effect from the Treasury.

I am glad to perceive that no practical inconvenience will ensue; for the accounts prepared in the mistaken form show so large a balance, that even when the erroneous credits are struck off, the actual grant of 3,541 *l.* for the year ending the 31st of March 1858, would appear to be more than sufficient to cover the actual expenditure.

The more important question, however, is, whether any reduction can be made in the amount of the Estimate for this year. In the absence of the Report promised from the Commissioners appointed to investigate the affairs of the Indian Department, I have acquainted the Lords Commissioners of the Treasury, that I fear that it is not possible to make any further diminution in the present Estimate; and I have pointed out that the amount proposed to be taken for miscellaneous charges is less by 370 *l.* than last year.

But as the discontinuance of this grant has so long been announced, and as some effectual steps must be taken to execute the decision, I have to apprise you that, subject to any further light which may be derived from the Commissioners' Report, if it arrive in time, the grant for salaries will be reduced next year by one-half, and cease in the following year; leaving it to you, with the advice of the proper officers on the spot, to provide for the department out of the large estates which it administers. Moreover, the last item of 330 *l.* in his present Estimate will be left out of the vote submitted to Parliament next year, and the grant of 300 *l.* for blankets must cease either then or in the following year, as both objects ought to be provided for out of the proceeds of Indian estates.

The pensions, however, stand on a different footing from all other items of the Estimate, and as there is always an implied pledge that grants of that kind are made for life, they will continue to be provided for by application to Parliament, unless it should appear that they can be charged with full security on the revenues of the Indian estates in Canada.

I have, &c.  
(signed) *Stanley.*

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Enclosure in No. 7.

Sir,

Treasury Chambers, 8 February 1858.

WITH reference to your letter of the 30th ult., forwarding copy of an Estimate proposed for this year by the Governor General of Canada for the Indian Department, I am directed by the Lords Commissioners of Her Majesty's Treasury to acquaint you, for the information of Mr. Secretary Labouchere, that my Lords would suggest the reconsideration of this Estimate, as soon as he shall have received the expected report from the Commissioners appointed to investigate the affairs of the Indian Department.

They trust that some further reduction will be made in the Estimate now transmitted, before it becomes necessary to submit the same to the House of Commons; and they entirely concur in the opinion expressed by Mr. Labouchere, that the demands on Parliament for this purpose cannot much longer be maintained.

Their Lordships observe among the papers enclosed in your letter, a statement signed by Deputy Commissary General Clarke, in which the Parliamentary grant for the year ending the 31st March 1858, is stated at 13,380 *l.*, whereas the sum voted by Parliament was, as Mr. Labouchere is aware, 3,541 *l.* only; and their Lordships request to be furnished with any information that can be afforded by your department as to this statement, upon which there is an assumed balance to the credit of the Indian Department of 12,277 *l.* 18 *s.* 10 *d.*

H. Merivale, Esq.  
&c. &c. &c.

I am, &c.  
(signed) *C. E. Trevelyan.*

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## — No. 8. —

(No. 38.)

COPY of a DESPATCH from the Right Honourable Lord *Stanley*, M. P., to  
Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 1 May 1858.

I HAVE received your Despatch, No. 41,\* of the 7th of April, accompanied by a memorandum by the Superintendent General of Indian Affairs on some parts of my communication to you, of the 15th of March, respecting the vote for the Indian Department.

On referring to my Despatch, you will perceive that I never said that the allowance of 300 *l.* for blankets and any allowance which might be reasonable for gunpowder and provisions ought to cease, but that they ought to be provided for out of the Indian estates.

On the subject of pensions, I hardly know how to state more clearly than I did before, that I consider them to be granted for life, and therefore not to be transferable from one fund to another, except with perfect security.

I have, &c.  
(signed) *Stanley*.

No. 8.  
Right Hon. Lord  
Stanley, M. P., to the  
Right Hon. Sir E.  
Head, Bart.  
1 May 1858.  
\* Page 20.

## — No. 9. —

(No. 8.)

COPY of a DESPATCH from the Right Honourable Sir *E. B. Lytton*, Bart., M. P.,  
to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 14 June 1858.

I HAVE received your Despatch, No. 56,\* of the 12th of May, accompanied by the Report of the Commissioners appointed for inquiring into the condition of the Indian tribes.

This Report brings together a great amount of useful information on the different bands of Indians, and will doubtless be valuable to those who are engaged in the practical administration of their affairs. I quite approve of the plan of which you submitted an outline to your Executive Council; and I presume that I shall hear further from you when they have adopted their conclusions on the subject.

The only point which appears to require immediate notice from me, is a matter of detail mentioned at page 119 of the Commissioners' Report. They allude to the issue of rations costing less than 100 *l.* per annum to 10 unfortunate Indians who, from privation of sight or similar causes, are disabled from seeking their own livelihood. These afflicted persons must certainly not be allowed to lose their customary pittance. A sum of 100 *l.* therefore will be added for this purpose in next year's estimate, to the amount of 300 *l.*, which my predecessor, in his Despatch, No. 10,† of the 15th of March, gave you reason to expect for the provision of blankets. At the end of two years, I hope that, by your plan, the issue of these few rations will be provided for on the spot, in common with all the other miscellaneous expenditure of the Indian Department, but I must recommend the poor persons in question to your special protection, and care should be taken that under no circumstances they should lose the indulgence which they have hitherto received.

I have, &c.  
(signed) *E. B. Lytton*.

No. 9.  
Right Hon. Sir E.  
B. Lytton, Bart.,  
M. P., to the Right  
Hon. Sir E. Head,  
Bart.  
14 June 1858.  
\* Page 21.

† Page 41.

## — No. 10. —

No. 10.  
Right Hon. Sir E.  
B. Lytton, Bart.,  
M.P., to the Right  
Hon. Sir E. Head,  
Bart.

28 June 1858.

\* Page 23.

(No. 14.)

COPY of a DESPATCH from the Right Honourable Sir *E. B. Lytton*, Bart., M.P.,  
to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 28 June 1858.

I HAVE had the honour to receive your Despatch, No. 73,\* of the 5th instant, accompanied by a memorandum from the Superintendent General of Indian Affairs, on the effect which the reduction of the Parliamentary grant will produce on some of the more destitute Indians.

† Page 41.

‡ Page 43.

In cases where any of the tribes may be wholly without funds for the support of their helpless and destitute members, it must be hoped that hereafter the Provincial Parliament will be disposed to make some provision for the necessities of the original possessors of the soil, which has now become the seat of a great and flourishing people of European race. I should be deeply concerned, however, if in the transition which is now taking place, any disabled or infirm Indians should be reduced to want. In my predecessor's Despatch, No. 10,† of the 15th March, you were informed that the vote of 300 *l.* for blankets would probably continue to be asked until the end of the second year from that period, viz., the 31st March 1860, and from my subsequent Despatch, No. 8,‡ of the 14th June, you will have learned that an additional sum of 100 *l.* per annum for the benefit of some indigent Indians would continue to be applied for to the same date. I have now to state that in order to give you better facilities for meeting any real cases of necessity, a vote of 500 *l.* instead of 400 *l.* as above recapitulated, will be submitted to Parliament for the year ending the 31st March 1860, for the issue of blankets and for any other charitable purposes which you may approve, but after that date I hope that under the plan which you have proposed, provision will be made from public funds in the province for the relief and assistance of any Indians who have no funds belonging to their own tribe on which they can draw for a supply of their indispensable wants.

I have, &c.

(signed) *E. B. Lytton.*

## — No. 11. —

(No. 26.)

No. 11.  
Right Hon. Sir E.  
B. Lytton, Bart.,  
M.P., to the Right  
Hon. Sir E. Head,  
Bart.

11 February 1859.

\* Page 25.

COPY of a DESPATCH from the Right Honourable Sir *E. B. Lytton*, Bart., M.P.,  
of Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 11 February 1859.

I HAVE received your Despatch, No. 4,\* of the 17th of January, accompanied by an estimate of the expenses of the Indian Department for the year ending the 31st of March 1860.

This estimate is prepared in accordance with conclusions previously announced by Her Majesty's Government, and it will accordingly be submitted to Parliament.

With regard to the subject adverted to in the memorandum of the Superintendent General of Indian Affairs, I regret to learn, that no provision has yet been made for defraying on the spot the salaries of the officers of the Indian Department, but long notice has been given of the necessity which was felt to relieve the British Treasury from bearing this burthen for a service of so specially a Canadian character. I, therefore, cannot undertake to alter the previous decision, but must leave it to you, with the advice of your Council, to take such steps as you may deem proper for keeping up the remuneration of the officers employed in the indispensable duty of watching the interests of the Indians and administering their affairs.

I have, &c.

(signed) *E. B. Lytton.*



## — No. 12. —

(No. 27.)

COPY of a DESPATCH from His Grace the Right Honourable Sir *E. B. Lytton* Bart., M.P., to Governor General the Right Honourable Sir *Edmund Head* Bart.

Sir,

Downing-street, 11 February 1859.

I HAVE to acknowledge the receipt of your Despatch, No. 6,\* of the 18th January, transmitting the Report of the Superintendent General of Indian Affairs for the past year, of the department under his charge.

I have, &c.  
(signed) *E. B. Lytton.*

No. 12.  
Right Hon. Sir E. B. Lytton, Bart., M.P., to the Right Hon. Sir E. Head, Bart.  
11 February 1859.  
\* Page 26.

## — No. 13. —

(No. 18.)

COPY of a DESPATCH from His Grace the Duke of *Newcastle* to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 3 March 1860.

WITH reference to former correspondence on the estimate for the Indian Department in Canada, and especially to my predecessor's Despatch, No. 26,\* of the 11th February 1859, I have the honour to inform you that in conformity with the announcement which was first made on the 15th of March 1858,† and which has since been repeated at intervals, no further provision for the salaries of officers of the Indian Department will be made in the estimate to be laid before Parliament this year. The same amount as last year will be submitted for pensions, and a sum of 383 *l.* will be proposed for supplying blankets to aged Indians and for any other charitable purposes which may be approved by you, making the total grant amount to 1,100 *l.*

I have, &c.  
(signed) *Newcastle.*

No. 13.  
Duke of Newcastle to the Right Hon. Sir E. Head, Bart.  
3 March 1860.

\* Page 44.

† Page 41.

## — No. 14. —

(No. 63.)

COPY of a DESPATCH from His Grace the Duke of *Newcastle* to Governor General the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 16 June 1860

I HAVE to acknowledge the receipt of your Despatch, No. 42,\* of the 9th of May, enclosing a petition addressed to the Queen by the Indian tribes of Lakes Huron and Simcoe, together with a copy of a Report upon it by the Superintendent General of Indian Affairs.

I have laid this petition before the Queen.

As you anticipate, the matter treated of in the petition must be left to be dealt with by the Canadian Government. The land questions are such as can only be adequately understood and judged of on the spot.

A vote of 383 *l.* is still retained in this year's estimate for finding blankets for indigent Indians.

I trust that the liberality of the Provincial Government will furnish any further assistance which may be justly claimable from a humane consideration for destitute and helpless Indians.

I have, &c.  
(signed) *Newcastle.*

No. 14.  
Duke of Newcastle to the Right Hon. Sir E. Head, Bart.  
16 June 1860.  
\* Page 30.

— No. 15. —

(No. 85.)

No. 15.  
The Secretary of  
State to the  
Right Hon. Sir E.  
Head, Bart.  
14 July 1860.

COPY of a DESPATCH from the Secretary of State to Governor General  
the Right Honourable Sir *Edmund Head*, Bart.

Sir,

Downing-street, 14 July 1860.

THE Act No. 2132, passed by the Legislature of Canada in the month of May last, intituled, "An Act respecting the management of the Indian Lands and Property," having been transmitted to this office in your Despatch, No. 48,\* of the 18th of May; the Duke of Newcastle reported to Her Majesty in Council his opinion that the said Act should be specially confirmed.

I have now the honour to transmit to you an Order of Her Majesty in Council, dated the 30th of June, approving that Report.

I have, &c.  
(signed *G. C. Lewis*.)

\* Page 37.

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INDIAN DEPARTMENT (CANADA),

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COPIES or EXTRACTS of CORRESPONDENCE  
between the Secretary of State for the Colo-  
nies and the Governor General of *Canada*,  
respecting Alterations in the Organization of  
the INDIAN DEPARTMENT in *Canada*.

(*Mr. Blake.*)

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*Ordered, by The House of Commons, to be Printed,*  
*25 August 1860.*

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[*Price 1 s.*]

595.

*Under 8 oz.*

## GALWAY PACKET CONTRACT TRANSFER.

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RETURN to an Order of the Honourable The House of Commons,  
dated 16 July 1860;—for,

COPIES “of the proposed ASSIGNMENT of the GALWAY PACKET CONTRACT to the Government of *Canada*, and any COMMUNICATIONS stating the Conditions or Modifications on which the Sanction of Her Majesty’s Government is sought to that Transfer.”

Treasury Chambers, }  
2 August 1860. }

S. LAING.

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THIS INDENTURE made the 6th day of July 1860 BETWEEN THE ATLANTIC ROYAL MAIL STEAM NAVIGATION COMPANY Limited (hereinafter called “the Company”) of the one part, and THE HONOURABLE SIDNEY SMITH the Postmaster General of Canada acting for and on behalf of the Government of Canada of the other part: WHEREAS by articles of agreement dated the 21st day of April 1859 between the Commissioners for executing the office of Lord High Admiral of the United Kingdom of Great Britain and Ireland (hereinafter called “the Admiralty”) for and on behalf of Her Majesty of the one part, and the Company of the other part, the Company covenanted to convey Her Majesty’s mails fortnightly from Galway in Ireland to Boston in the United States of America, and from Boston to Galway and fortnightly from Galway to New York in the United States of America, and from New York to Galway alternately by means of steam vessels to be provided by the Company, and the Company thereby covenanted to fulfil other conditions of the contract thereby entered into between the Admiralty and the Company: And in consideration of the due and faithful performance by the Company of all the services thereby contracted to be by them performed, the Admiralty agreed that there should be paid to the Company out of monies to be provided by Parliament, so long as they performed the whole of the services thereby contracted for, a sum after the rate of 1,500*l.* for each entire voyage out or home, the payments to be made by bills and on production of certificates as therein expressed, but subject to deductions as therein expressed: And it was thereby agreed that the contract should commence not later than the month of June 1860 and should continue in force for seven years or until the expiration of 12 calendar months’ notice from the Admiralty as therein expressed: And it was thereby provided that without the consent of the Admiralty signified in writing under the hand of one of their secretaries the contract or any part thereof should not be assigned underlet or disposed of: AND WHEREAS negotiations have for some time past been proceeding between the Company and the said Sidney Smith, as such Postmaster General of Canada, for the purchase and assignment of the benefit of the recited contract with the Admiralty and the said Sidney Smith, as such Postmaster General, has offered to become the purchaser thereof, for and on behalf of the Government of Canada, at the price or sum of 35,000*l.* a year for the period of seven years from the 26th day of June 1860, which offers the Directors of the Company have accepted, certain arrangements having been concurrently made to their satisfaction for capitalizing the said yearly sum, so as to free the Company from all risk of non-payment of the said yearly sum, and to provide them immediately with the value thereof in cash towards satisfying their immediate financial requirements,

514. and



and subject to a condition by which the Directors have stipulated that during the duration of the contract the service shall be performed to and from the port of Galway as provided for in the recited contract, and that the same shall be worked for the benefit of the people of Ireland as originally and always contemplated by the directors of the Company : AND WHEREAS it has been agreed that these presents shall be entered into and executed for the purpose of carrying the sale and purchase of the benefit of the recited contract into effect on the terms and conditions hereinafter appearing : NOW THIS INDENTURE WITNESSETH that in consideration of the premises, and for the considerations hereinafter appearing, but subject to the conditions hereinafter expressed, the Company do hereby grant assign and transfer unto the said Sidney Smith, as such Postmaster General for and on behalf of the Government of Canada, and his assigns, ALL those the recited articles of agreement of the 21st day of April 1859, and all sums of money to be payable thereunder to the Company for or in respect of the service to be performed under the recited contract, from and after the date hereof, except the service now in course of performance by the "Parana" steam vessel, and all other the benefit and advantage whatsoever of the same articles of agreement and of the contract thereby entered into between the Admiralty and the Company, and all the right title interest expectancy claim and demand whatsoever of the Company therein and thereto (all which premises are hereinafter called "the purchased premises") together with full power and authority for the said Sidney Smith or his successor in the office of Postmaster General of Canada, or his assigns, as the attorney or attorneys of the Company and either in his or their name or names or in the name of the Company, to demand, recover, receive and give receipts and discharges for the same monies, and in all other respects to enforce the recited contract and to obtain the benefit of the same and of the transfer thereof intended to be hereby made, TO HAVE RECEIVE TAKE AND ENJOY all and singular the purchased premises with the appurtenances, (but subject to the conditions hereinafter expressed) unto and by the said Sidney Smith and his successors in office and their respective assigns absolutely, but for the use and benefit of the said Government of Canada ; PROVIDED ALWAYS and it is hereby agreed and declared that these presents are on this condition that these presents shall not take effect as an assignment or other disposition of the purchased premises or any part thereof, unless on or before the 19th day of July 1860 the consent of the Admiralty to the assignment intended to be hereby made of the same should be signified in writing under the hand of one of their secretaries, but on their consent being so signified these presents shall take effect as an absolute assignment of the purchased premises according to the tenor and true intent thereof ; PROVIDED ALSO and it is hereby further agreed and declared and these presents are on this further condition, that if the consent of the Admiralty shall not be signified as aforesaid then on the 20th day of July 1860 these presents shall become null and void to all intents and purposes ; And the Company do hereby for themselves covenant with the said Sidney Smith, his executors, administrators and assigns that the Company now are absolutely entitled at law and in equity to the recited contract and the full benefit thereof, And have not been party or privy to any act deed or thing whereby the purchased premises or any part thereof are is or can be in anyway avoided, impeached or prejudiced ; AND ALSO that the Company will use their utmost reasonable endeavours to secure the consent of the Admiralty being signified as aforesaid, AND ALSO but subject to the consent of the Admiralty being signified as aforesaid That the Company now have full right and lawful and absolute authority to assign the purchased premises unto the said Sidney Smith, his executors, administrators or assigns as aforesaid, and that free and freely and absolutely discharged by the Company from all rights claims and demands whatsoever except only the liabilities hereinafter covenanted by the said Sidney Smith to be discharged ; AND ALSO that the Company will not at any time before the consent of the Admiralty is signified as aforesaid make or suffer any act deed or thing whereby or by reason whereof the purchased premises or any part thereof can be in any way incumbered, impeached or otherwise prejudicially affected ; AND ALSO that if the consent of the Admiralty shall be signified as aforesaid, the Company will from time to time thereafter at the request and expense of the said Sidney Smith, his executors, administrators and assigns make execute and perfect all such acts, deeds and things for the further assurance

assurance of the purchased premises to him and them according to the true intent of these presents as by him and them and his and their counsel in the law shall be lawfully and reasonably advised and required; AND the said Sidney Smith doth hereby for himself his heirs executors and administrators and also as such Postmaster General for the Government of Canada, covenant with the Company and their assigns that if the consent of the Admiralty shall be signified as aforesaid, the said Sidney Smith or his successor in office or their respective assigns or the Government of Canada will pay to the Company or their assigns the yearly sum of 35,000 *l.* for the period of seven years from the 26th day of June 1860 without any deduction, the first payment thereof to be made on the 26th day of June 1861, and the seventh and last payment thereof to be made on the 26th day of June 1867; AND ALSO will on or before the 13th day of July 1860 dispatch or cause to be dispatched a proper and sufficient steam-vessel from Galway to Boston, or to such other port or place as the Admiralty shall direct for the conveyance therein of Her Majesty's mails; And will in all other respects and at all times during the continuance of the recited contract properly and sufficiently perform all the obligations thereof which if these presents were not made and executed it would be obligatory on the Company to perform, and will at all times fully and freely indemnify and save harmless the Company from and against all costs, losses, damages and expenses, claims and demands whatsoever by reason of any failure on his or their parts respectively in the due fulfilment of the recited contract; IN WITNESS whereof the said Company have caused their common seal to be hereunto affixed and the said Sidney Smith has hereunto set his hand and seal the day and year first above written.



*Peter Daly,*  
*John Gray,*  
*G. L. Lascaridi,* } Directors of the Company.

The Seal of the Atlantic Royal Mail Steam  
 Navigation Company, Limited, was affixed  
 hereto in the presence of

*A. Boate, Secretary.*

*Sidney Smith. (L. S.)*

Signed, Sealed, and Delivered by the above  
 named Sidney Smith, in the presence of

*Charles Bischoff, Solicitor,*  
 19, Coleman-street, London.

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BASIS of CONVENTION between the Imperial and Canadian Governments submitted by the Honourable *Sidney Smith*, Postmaster General of *Canada*, to Her Majesty's Government, on the 11th July 1860.

Art. 1. THAT the British Government shall, under the 43d Section of the Contract between it and the Atlantic Royal Mail Steam Packet Company, sanction the assignment to the Government of Canada of that contract as made by the Indenture of the 6th July 1860, between the said Company and the Honourable Sidney Smith, Postmaster General of Canada.

Art. 2. That the subsidy of 78,000 *l.* per annum, payable by the British Government under that contract, shall be payable to the Canadian Government, or parties authorised by them to receive it, from time to time, in accordance with the terms of the said contract and of this Convention, so long as the conditions are duly complied with.



Art. 3. The fortnightly service provided for by the said contract shall continue to be performed to and from the Port of Galway, and shall be worked for the benefit of the people of Ireland in all respects as provided by that contract.

The alternate weekly boat shall call at Londonderry, so as to give Ireland a weekly communication.

Art 4. Quebec in summer, and Portland in winter, shall be substituted for New York and Boston.

Art 5. The days of sailing shall be fixed by mutual consent of the Postmasters General of England and Canada, or in default of such arrangement, each party will retain the right of fixing the days of sailing on its own side.

Art. 6. The time for the sea voyage from port to port to be fixed at not less than 24 hours less than the average time of the sea voyages of the steamers of the Cunard line for the year 1859 from port to port, taken on the average of in and out voyages, and of summer and winter services respectively.

Art. 7. The British Government will endeavour to procure for Canada the subsidy heretofore paid for the Newfoundland Mail Service, and in the event of failing to obtain that subsidy, the Canadian Government shall not be required to deliver mails at St. John's, Newfoundland.

If the Canadian Government shall have a line of telegraph constructed to Belleisle, at which telegraphic messages may be delivered in as short a time as at Newfoundland, the British Government shall allow Belleisle to be substituted for St. John's, as the place of call for such messages.

If such telegraph be constructed, the British Government may have the use of it for Government messages, free, with priority over all other messages, except those of the Canadian Government, for a payment of 2,000 *l.* a year.

Art. 8. The service shall be performed by the Canadian line of steamers, and under and in accordance with the terms of the contract between the Postmaster General of Canada and Hugh Allan, Esq., proprietor of that line, so far as consistent with this Convention, the Canadian Government being responsible to the British Government for the due execution of the terms of the Convention.

Art. 9. Until some other arrangement can be made with the United States, one cent to be taken from the 16 cents on United States' letters carried through Canada, and allowed to Canada towards inland postage before the division of the ocean postage.

Art. 10. Sea postage upon newspapers sent from Europe shall be taken into account at the rate of one cent each.

Art. 11. The net sea postage earned by the weekly Canada line shall be divided equally between the Imperial and Canadian Governments.

Art. 12. This Convention shall continue in force unless modified by mutual consent, for the same term as the contract with the Atlantic Royal Mail Steam Packet Company, viz., until June 1867.

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The Postmaster General of Canada to the Lords of the Treasury.

My Lords,

London, 30 May 1860.

THE Committee of the House of Commons on Packet Contracts having made its Report, it is now my duty to bring under your Lordships' notice the subject referred to in the communication of the Honourable John Rose, dated 16th August last, a copy of which I beg leave to enclose herewith.

Since the date of that communication, the position of matters referred to therein, has materially changed. The proprietor of the Canadian line of steamers, finding that he could not sustain the line upon the subsidy provided by the contract with the Canadian Government, applied for additional assistance, and an arrangement was made to give, in addition to that subsidy, an amount equal to the

the postages upon correspondence carried by his ships. Under the apprehension that this would be insufficient to meet the loss which he would sustain in the performance of this service, he made an arrangement with the Galway Company for a transfer of their contract with the British Government upon such terms as he conceived would have enabled him to carry out that service in connexion with the service contracted for with the Canadian Government. Unfortunately, however, Her Majesty's Government did not then consider that they were in a position to concur in the arrangement; it was consequently abandoned, and cannot now be renewed, and very grave doubts are entertained as to the ability of the Galway Company to fulfil its contract.

In the month of February last, finding, upon the information then before them, that the Canadian line of steamers could not be sustained without further pecuniary assistance, the Canadian Government submitted to Parliament a measure for the relief of the contractor, and granting a subsidy of \$416,000 in lieu of the former subsidy of \$220,000.

In the Act increasing the subsidy to the Canadian steamers, provision is made for aid to a line of telegraph from Father Point to the Straits of Belle Isle: the distance from the Straits to Ireland is about 1,540 miles. Arrangements are far advanced for the completion of this line during the present season, and not only will the shortest communication between Europe and America thus be established, but other advantages of a national as well as a provincial character obtained. Stations will be established at suitable points which parties can reach in case of disaster, shipwreck, or vessels in distress, and from which they can apply for succour and assistance. In this way much loss of life and property will be prevented. The conditions of the gulf and straits as to ice can at all times be ascertained with certainty, and thereby much loss of time and danger to vessels be avoided. Telegraphic communications, carried by Canadian steamers, will be received from, and forwarded to all parts of the continent, with greater facility and expedition than by any other means.

The recent change in the commercial policy of Great Britain, by which the duty upon foreign timber has been removed, will have a most detrimental effect upon the timber trade of Canada.

No complaint has been made, although no intimation was ever given of the intended change; but it has been found necessary to adopt a new policy for Canada, in order to avert, as much as possible, the evils anticipated therefrom, and to prevent the entire trade of the St. Lawrence from being destroyed or diverted into American channels through the subsidies to lines of steamers plying to the United States ports of Boston and New York. Free ports have, therefore, been established in the Gulf of St. Lawrence and at Sault St. Marie, on Lake Superior, and the tolls upon the provincial canals, and the light and lake dues upon the St. Lawrence have been abolished. These measures have been adopted with a view of fostering and encouraging the trade and commerce of the country, and upon the confident expectation that some arrangement would be made by the Imperial Government for placing the interests of Canada and the enterprise in question upon a fair footing, so soon as the Committee of the House of Commons had made its reports.

An attempt was made during last winter to sustain the line by making Queenstown a port of call for the Canadian steamers: at the time the Canadian Government assented to the arrangement, they were unaware that it was in contemplation to make it a port of call for the Cunard steamers; but before the proprietor of the Canadian steamers could perfect his arrangements for that purpose, the Boston steamers of the Cunard line were required by the British post-office authorities to make Queenstown a port of call, and in April last the New York ships came under the same arrangements: under such circumstances, and after several months' experience, it has been found necessary to change the port of call for the Canadian steamers to some port in the North of Ireland, and Londonderry has now been selected for that purpose.

The advantages to be derived from this change are, that opposition of the Cunard and other lines of steamers touching at Queenstown, will be avoided; a saving in the length of voyage of about 300 miles will be effected, and the North of Ireland and Scotland will be accommodated with the same postal and commercial facilities which through other lines of steamers are already enjoyed by the south and west of Ireland and England.

Nova Scotia now enjoys semi-monthly communication with Europe by the



Cunard line; similar advantages will be obtained by Newfoundland through the Galway line, while Canada alone (so far as assistance from the British Government is concerned) is without any service, and the interests of the province have been and are imperilled through the refusal of the Imperial authorities to extend to it similar consideration and relief. It has been asserted that Canada is sufficiently served with postal communication by the Cunard line, although those vessels ply to United States ports; but to prove how utterly unfounded is this assertion, and how necessary it was that Canada should establish the existing service, I take the liberty of enclosing herewith a Table compiled from authentic and accurate returns in the Canadian Post Office department, showing that correspondence is actually retarded, rather than expedited, by that mode of conveyance. It has happened not unfrequently during the past year that the mails forwarded on Thursday by Canadian steamers have reached the Canadian cities in advance of the mails forwarded by the Cunard steamer which sailed on the previous Saturday. The mails for Europe have obtained still more marked advantages by being forwarded by Canadian, instead of by Cunard ships; under the circumstances, it cannot be held that any portion of the subsidy paid to the Cunard line is fairly chargeable to Canadian purposes; but even were it otherwise, the material and commercial interests of the province, far more important than questions of mere postal convenience or accommodation, are involved in this question, and should be considered. That such matters are taken into consideration even by the British Post Office authorities is manifest, from the fact that while they insist that the Treasury is not reimbursed through the postages upon correspondence carried by Cunard ships for the subsidy paid to that line, they have nevertheless unceasingly exerted themselves with the United States authorities to bring about a reduction of the sea postage upon that correspondence. It may not be out of place to mention, that not only is correspondence for Canada delayed when diverted from the Canadian steamers, and forwarded by Cunard ships, but Canada is deprived of the postage thereon, and the Canadian public are subjected to a higher rate of postage for the inland American rate, which goes into the coffers of the United States.

In addition to the delay and expense attending the transmission of Canadian correspondence by Cunard steamers, the establishment of Queenstown as a port of call for Cunard steamers, by which the Canadian line have been driven to abandon it, and seek another port, and in addition to the inability of the British Government to concur in the arrangement for the transfer of the Galway contract to which I have alluded, in the last report of the Postmaster General, published in the month of March last, it is stated, "that a contract has been concluded, by giving an additional mail once a fortnight to the United States and Canada, by means of packets to ply alternately between Galway and Boston and Galway and New York. The service is to begin not later than next June." The effect of this arrangement (if carried out) will be to divert from the Canadian steamers another large portion of correspondence, both for Canada and the United States; this correspondence will be more delayed than that conveyed by the Cunard line, in consequence of the detention occasioned by calling at St. John's, Newfoundland; again will Canada be deprived of a source of revenue to which it is fairly entitled. The correspondence of the Canadian people will be subjected to greater delay and expense than if it were transmitted through the channel provided and paid for by their own Government; and again will they be compelled to contribute to the finances of the United States Government.

It is now felt to be a serious grievance that Canada is not allowed to do her own business by means which the province has provided and paid for, and from which it would in a measure be reimbursed the outlay. This new arrangement will much increase the evil.

If it could be alleged that the service was more efficiently performed by the other lines of steamers, and that the Canadian people desired their correspondence forwarded through channels other than their own, or could it be asserted that the sum paid by the British Government to the Cunard line was largely in excess of the revenue derived from the service, the necessity or desirability of the existing state of matters could be understood; but such, as it appears to me, are not the facts.

By the report of the British Post Office, just published, it is stated, that the amount paid for the service by Cunard line (embracing a sum of 14,700 l. for the line

line between Halifax and Bermuda and Halifax and St. John's, and 3,000 l. for the line between New York and Nassau, is	- - - -	£. 191,000
Deduct these two sums	- - - - £. 14,700	
And	- - - - 3,000	
		17,700
Leaving amount paid for Transatlantic service	- £.	173,000
Or	- - - \$.	840,505
By the report of the Postmaster General of the United States, dated 3 December 1859, it appears that the aggregate amount of postage (sea, inland, and foreign) on mail conveyed to and from Europe, by the several lines of mail steamers employed by that department, was \$ 484,668 $\frac{54}{100}$ , and by the British	- \$	805,629. 24
Leaving balance of	- - - - - \$	34,876. 76

against the foreign postages and postages upon correspondence for Canada, and all the other British American provinces. It also appears, from the evidence given by Sir Samuel Cunard before the Committee of the House of Commons, that the payment of the subsidy for the service performed by the Cunard line occasions no pecuniary loss to the country.

Upon the establishment of the Cunard line, it was arranged that a branch service should be maintained between Halifax and Quebec; but that was subsequently abandoned. Arrangements have now been made by which Canada will have a regular weekly communication in summer between Quebec and Picton in Nova Scotia, and Shediac in New Brunswick, by steamers running in connexion with the Atlantic steamers. The Postmasters General of those provinces have been invited to avail themselves of the advantages thus afforded them of a regular weekly communication with Europe. In winter the service will be maintained with New Brunswick by means of a steamer running between Portland and St. John's, New Brunswick, in connexion with the Canadian steamers.

I may remark, that during the Crimean war the Cunard line were compelled, from the necessities of the empire, to reduce the service with America to a semi-monthly one.

The Canadian steamers were all employed as transports by the British Government, and I am quite prepared to say, that, were the necessities of the empire ever again such as to call for the service of the Canadian steamers, the people of Canada would in any event readily forego the advantages afforded by their line, and cheerfully place their ships at the service of Her Majesty. In the Canadian steamers the Imperial Government, in case of need, will have a fleet of first-class steam transports, and therefore, upon national as well as upon other grounds more purely of a provincial and commercial character, the Provincial Government feel justified in asking the aid of the Imperial Government to this most important and most cherished provincial enterprise.

Arrangements were made in November last between the United States and Canadian Post Office authorities for the transport of United States mails by the Canadian steamers, from which it is anticipated that a considerable revenue will be derived; but the service has not been sufficiently long in existence to afford any satisfactory evidence as to what will be the pecuniary result from it.

Under these arrangements, provision was made in November last to forward supplemental mails for America by Canadian steamers from Queenstown, on the Thursday of each week, and the British Post Office undertook to defray the expense of the special service between Dublin and the ships.

Since that time it has been arranged by the United States authorities that supplemental mails shall be forwarded by another line of steamers (the Inman line) from Queenstown.

The British Post Office has assented to the arrangement, and the expense of the special service, originally undertaken to benefit the Canadian line, is now intended to be continued for the benefit of another line, and for a foreign country, and in a way that will deprive Canada of a large proportion of the advantages likely to have accrued from these arrangements.



A practical difficulty has also arisen in the working of the arrangements as regards the French mails for and from the United States.

The British and United States offices desire the French authorities to account directly to the United States office for the postage on such correspondence as may be carried by Canadian ships.

The French authorities insist that such a course is inconsistent with the postal treaties between the three countries, and that by such treaties they must account to the British Office for postages upon all correspondence carried by ships sailing (as the Canadian ships do) under the British flag. The adoption by the British Government of the Canadian ships as British postal packets will alone save these arrangements from becoming abortive.

I beg leave to refer your Lordships to those parts of the Report of the Committee having especial reference to the position of Canada, and particularly to those parts of it in which it is asserted that the Committee "are of opinion that matters remaining on the footing on which they now stand, the results must be very unsatisfactory;" and "in the meanwhile this country and her Colony present the spectacle of competition against each other, by maintaining rival subsidized lines at a great mutual cost to the respective Governments."

With a view to avoid such unsatisfactory results, and to demonstrate the superior advantage of the St. Laurence route, to place the Canadian line of steamers upon as favourable a footing as lines running to other British Colonies, to remove the only feeling of dissatisfaction which exists in the province in reference alone to the subsidies granted by the Imperial Government to lines of steamers in the benefits of which all other Colonies, with the exception of Canada, participate, to remove all cause of discord and dissension which, under existing circumstances, exists, and will naturally arise between the Post Office departments of the mother country and Canada in their efforts to divert correspondence from one line to another line of steamers, to remove a just and serious cause of complaint, the excessive charge for postage upon Canadian correspondence carried by the Cunard ships, to develop and foster the commercial and other interests of the province, and at the same time to enable Canada to cultivate more intimate commercial and other relations with the sister provinces through the means to which I have adverted.

I have the honour to submit to your Lordships' consideration a proposition, through which I believe these objects will be attained, and no considerable expense to the Imperial Government will be occasioned, viz., that the British Government will grant a sum of 50,000 *l.* sterling per annum as a subsidy to the Canadian line of steamers, the Provincial Government undertaking to contribute an equal amount. That the postage on Canadian correspondence, by whatever line it may be forwarded, shall be reduced to the same rate as is now charged upon correspondence sent by Canadian steamers; that the postage upon all Canadian correspondence, by whatever line transported, and all postages upon other correspondence carried by Canadian ships, shall be equally divided between the Imperial and Provincial Post Office departments, and in the event of there being any excess of postage beyond the whole subsidy paid, that the Canadian department shall receive that excess.

I make this proposition subject, of course, to any alteration or modification which Her Majesty's Government may suggest.

I have, &c.  
(signed) *Sidney Smith.*

To the Right Honourable the  
Lords Commissioners of Her Majesty's Treasury.

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Enclosure No. 1.

No. 91, Victoria-street, Westminster.  
16 August 1859.

My Lord Duke,

REFERRING to the interview with which I was favoured some days ago, and to the subject of the Transatlantic packet arrangements then discussed, I have now the honour to state, in writing, the substance of the objections which Canada entertains to these arrangements, and to renew the expression of my earnest hope that a just consideration may yet be extended to colonial interests by the Imperial Government.

Your Grace is aware that an address of the Legislature of Canada to Her Majesty was adopted last Session, in which the position of the Colony and the injurious operation of the

two lines subsidized by Great Britain to foreign ports were fully pointed out. I would here, however, briefly again advert to them.

The avowed intention of the first contract entered into with Mr. Cunard was to facilitate communication between the parent State and her North American dependencies, and the mails for Canada were for some time conveyed by a branch steamer from Halifax to Quebec. The Cunard Company, however, finding it difficult and expensive to keep up this branch steam service, it was discontinued. The great bulk of the Canada mails have since been conveyed from England direct to New York and Boston, and thence across the United States territory to the province.

No objection was made in Canada at the time to this arrangement, both because the enterprise was a new and deserving one, and because the Colony did not then possess any railway communication of its own from the sea-board to the interior of the country, nor had the new interests arising from the completion of the public works of Canada then come into existence. During the continuance of the various Cunard contracts, the province felt that it could not ask in its own interest for any change which might involve the slightest breach of faith towards the contractors, but a confident expectation was indulged that when the period arrived for considering the continuation of the service, no renewal of the agreement would take place without negotiations to which Canada might be a party, and that the new and important relations of a national character which had arisen in the meantime would be fully discussed.

That she was justified in indulging this expectation will, I think, be abundantly manifest by referring to the communications which have taken place between the two Governments to some of which I will presently advert.

It is not merely with reference to the postal requirements and convenience of Canada, however, that this question is to be considered. It involves considerations of a higher and more extensive character, which affect as well the future prosperity of the province as the extensive and various interests of British subjects existing there. To these general considerations I would first very briefly call the attention of your Grace.

The efforts of Canada have for many years been directed to develop the trade of the St. Lawrence, and attract the commerce of the western states of America to Europe through her territory, by the construction of extensively and costly works of internal communication.

So important were the works considered, that in the year 1842 Her Majesty's Government called on Parliament to afford its assistance in aid of the undertakings, and a loan was accordingly raised on the Imperial credit for that purpose. I cannot better point out to your Grace the importance of these works than by quoting the words of Lord Derby, then Principal Secretary of State for the Colonies, in a Despatch addressed to the Governor General of Canada, on the 2d April 1842: "It remains to be considered what are the public works towards the accomplishment of which it would be most desirable that the credit of this country should be applied; and I apprehend that there can be no doubt as to the principle to be applied in selecting such as partake least of a local, and most of a general character, as tend most to the extension of the great lines of communication, and the promotion of trade and intercourse, rather than such as tend more to the immediate local advantage of particular districts. These last are objects perhaps for aid from the provincial treasury, but primarily to be promoted by local exertion. The former are objects of colonial, and I may even add, of national interest and importance.

"Foremost amongst them stands the improvements of the navigation of the St. Lawrence this mighty stream, with its chain of lakes and its tributary rivers, forms the great natural highway of Canada; and not only of Canada, but also of a great portion of the United States, and of very extensive tracts of unoccupied fertile country, belonging both to ourselves and our neighbours, which will form flourishing states and provinces in the time of our children and grandchildren.

"To throw this great highway completely open, by means of substantial and permanent public works, would be an undertaking worthy of British enterprise, and one which, although chiefly and primarily essential to the advancement of Canada, would probably, both in a commercial and political point of view, not be without its advantage to the mother country.

"I do not at all question the propriety of a public expenditure for objects of this description, and in authorising you to state to the Provincial Parliament that Her Majesty's Government will be prepared to sanction a loan of 1,500,000 *l.* for the improvement of the public communications in Canada, whether by land or water, you will understand that the Legislature will exercise a discretion as to the works to be undertaken, so that the improvement of the St. Lawrence and the lakes be the first object, and that the total amount to be raised on British credit do not exceed the stipulated sum of 1,500,000 *l.*"

It may not be improper to add that the same course of policy had been approved of and adopted by Lord John Russell, who preceded Lord Derby as Colonial Secretary, and that he addressed Despatches of similar import to Lord Sydenham, in January and in May 1841.

Since that period Canada has steadily pursued the policy of extending her works of internal improvement to the full measure of her resources. Canals uniting the Great Lakes, and affording uninterrupted navigation, even for sea-going vessels, to the foot of Lake Superior, have been constructed. Numerous lighthouses, extending from the western frontier of the province to the coast of Labrador on the Atlantic, a distance of nearly 1,600 miles, have also been erected, and are maintained at a very heavy annual charge by the



the Colony, without the exaction of any dues on shipping for their support. There is likewise maintained, by the payment of a large provincial subsidy, a line of powerful iron tug steamers in the Gulph of St. Lawrence, which are available at almost nominal rates for the towage of vessels trading to Canadian ports. It may fairly be asserted that the province possesses the most extensive system of inland water communication in the world.

In these enterprises nearly the whole direct public debt of Canada, amounting to about 7,000,000 £., has been expended.

There have also been constructed lines of railway extending from the Atlantic sea-board as far west as Sarnia, on Lake Huron, by means of which, on the completion of the Victoria Bridge, in November of the present year, an unbroken communication by the Grand Trunk Railway alone, of nearly 1,100 miles, to the interior of the country, will exist. Other lines, extending to all important sections of the province, have likewise been built, and these Canadian roads, at their westerly extremities, connect with the United States lines leading north as far as Minnesota on the one hand, and south to New Orleans on the other. Provincial aid has been largely extended towards their construction, and many millions of British capital are invested in them.

The magnitude and importance of the trade of the regions lying to the west of Canada, which seek an outlet to Europe for their products, are well known to your Grace, and will be admitted fully to have warranted this large outlay to secure it.

It has been conclusively shown that these Canadian channels of communication afford the nearest and most direct route from Europe to the western States of America, and it was confidently anticipated that, on completion of her canals and railways, the province would obtain a share of this commerce, which might alike render her own provincial works productive, and the private enterprises adverted to, remunerative to the projectors.

In endeavouring to attract this western trade, she had to incur not only the competition of the American cities of Boston and New York, and of the powerful interests connected with the railways leading to them, but also the direct rivalry of the State of New York itself, by which the Erie Canal from the lake of that name to the navigable waters of the Hudson River, had been constructed as a Government undertaking.

The large subsidy paid by the British Government to the Cunard steam-ships, has, it is well known, operated as a direct bounty to the ports of New York and Boston, and, as was shown by evidence laid before the Canadian Legislature, the effect was greatly to draw the trade into the American channels leading to those cities, thus defeating the object which Canada sought to accomplish in the construction of her public works.

So painfully adverse to the interests of the Colony was the course of trade becoming, that Canada felt herself compelled to undertake a direct mail steam-ship service with Liverpool from the St. Lawrence fortnightly in summer, and monthly in winter, to Portland, in the State of Maine, the Atlantic terminus of the Grand Trunk Railway.

The establishment of this even occasional communication so abundantly showed the advantages of the St. Lawrence route, and the provincial objects to be attained were so important, that the Government increased the service to a weekly line, by granting a subsidy of 55,000 £. currency, or about 45,000 £. sterling a year, and this line has been in successful operation since April last. It is composed of eight first-class screw steamers, of the burden of from 1,786 to 2,200 tons, and from 350 to 450 nominal horse power. These ships have been built expressly for the service, at a cost of nearly 650,000 £. sterling, including the necessary tenders; and their voyages for regularity and speed can compare most favourably with those of any other company. The average length of their voyages has, I am informed by the contractor, been 10 days and 23 hours eastward, and 11 days and 17 hours westward; while that of the Cunard ships was, westward to Boston, 12 days 21 hours, and to New York 12 days and 15 hours; and eastward, from Boston, 11 days and 4 hours, and from New York 10 days and 21 hours. During the present year, since the new ships have been placed on the line, the contrast is presumed to be still more in favour of the Canadian ships, one of them in the "Hungarian" having performed three consecutive voyages across the Atlantic in 27 days and 23 hours. The eminent success of this line has clearly demonstrated the superior advantages which the route offers, as well for emigration and commerce, as for the transmission of mail matter to all parts of America.

When the experiment was entered upon by Canada, these considerations were placed before Her Majesty's advisers, and I would take leave to direct the attention of your Grace to a Despatch, dated the 2d September 1856, from the Governor General of Canada to the Colonial Secretary, wherein the claims of the Canadian line to Imperial consideration are thus stated:

"2. I may perhaps be allowed to add, that there is a point of view in which a Canadian may look at the whole question somewhat different from that in which it has presented itself to the authorities at the General Post Office.

"3. A Canadian may ask, 'Why are we in Canada obliged to pay a subsidy at all for a line of steamers running into the St. Lawrence to a British port, by a route which we hold to be the most advantageous route?' The merits of the route itself might make our subsidy unnecessary, were it not that Her Majesty's Government give a large bounty to a line running to foreign parts.

"4. It may be admitted that Canada was benefited by the rapid transmission of the mails through the United States, but she was no party to the arrangement as one which could never be revoked. Canada now thinks that she can arrange for the conveyance of her own mails, to and fro, by way of Quebec in summer and Portland in winter, more rapidly and

and advantageously than by Boston and New York. Why should Her Majesty's Government discourage this new enterprise on the part of Her Majesty's subjects, and by a large subsidy drive the business only to the United States ports?

"5. As a matter of course, we cannot ask for any breach of faith towards the present contractors. We cannot ask for a sudden termination to an arrangement of which we have had the full benefit; but we may surely ask that no renewal of that arrangement should be made without hearing what Canada has to say when the opportunity occurs. We may hope that no course will be pursued adverse to the principles of free trade, by the continuance of a large bounty to the Boston and New York lines.

"6. Leave the natural advantages of the St. Lawrence and Portland route to find their own level in the market, and in the meantime do not use all the influence of the British Post Office, and the assumed meaning of the existing arrangement respecting the 6d. and 5d. postage, so as to bear as hardly as possible on the first effort of this Colony to open the St. Lawrence to a regular line of British steamers."

In reply to this Despatch, the new Colonial Secretary informed the Government of Canada, on the 3d December 1856, that after communication with the Lords Commissioners of the Treasury, he was apprised by their Lordships that the existing arrangements with respect to the Canadian mail service would be continued until the expiration of Mr. Cunard's contract, when they hoped that an arrangement more in conformity with what they would regard as an equitable consideration for the finances of this country might be effected.

After these communications, and knowing that the Imperial Government had been made aware of the continued existence and successful working of the colonial line, Canada had a full reliance that no new arrangement with the Cunard line, or any other would be made, and that no extension of existing contracts would be granted for the continued conveyance of the mails to Boston and New York, without previous intimation to the provincial Government, and then only after a full discussion of the relative advantages of the different routes, and of the important national considerations which were inseparable from the service.

It was therefore with surprise and regret that the Canadian Government became aware, through certain members of it, who were in England on public business, in November last, that it had pleased Her Majesty's Government to renew the Cunard contract several years, in anticipation of its expiring, without any intimation whatever to Canada, or giving her any opportunity of showing not only that the American and Canadian mail service could have been performed more expeditiously and far more cheaply by the St. Lawrence in summer, and by Portland in winter, but that a serious and lasting injury would be inflicted on the commerce and revenue of the Colony, to the advantage of a foreign country. One of the objects which are stated to be aimed at in the extended arrangement is thus defined in a communication, dated the 19th June 1858, from the Secretary of the Admiralty to the Secretary of the Treasury:

"My Lords have to observe, that the present contracts by which the weekly communication with North America is maintained, are not terminable (excepting on default) till the 1st of January 1862, and that the ostensible object of the contractors, in their application at this early date for an extension of the period, is to enable them on the security so afforded of the continuance of the Government subsidy, to embark additional capital in the construction of still more powerful steam-ships by which to outstrip all competitors and maintain the superiority of the British line. This object appears to my Lords of national importance, and in the maintenance of this line, considerations of greater moment than those of a postal nature must have weight, when it is borne in mind that it is the connecting link between this country and her vast possessions across the Atlantic, and that in the event of the withdrawal of adequate support, the British line will be supplanted by foreign competitors, whose Government would probably again grant to them larger subsidies than those paid by this country."

It will not, I trust, be considered unreasonable, if I express my profound regret that one of the most important of these possessions was precluded from the opportunity of showing in what way the objects aimed at could be best accomplished, and that the course actually taken is more calculated to destroy than maintain the true connecting link between England and that possession.

It is with equally painful emotions that Her Majesty's Canadian subjects have become aware that another line, known as the Lever Line, has been subsidized by the Imperial authorities, which is likewise intended to ply to United States ports. The establishment and continuance of such a line cannot fail to augment the injury to the commerce, and continue the unsatisfactory and irritating arrangements, by means of which the postal communications with Canada are affected. Whatever Imperial considerations may have induced Her Majesty's Government to provide for a direct communication between Ireland and America, the Canadian Government cannot believe that it was intended thereby invidiously to foster the commerce of an emigration to the United States, to the distinct injury of Canadian interest, a result which much necessarily follow if the cities of New York and Boston are made the terminal ports of this line on the American side.

It would certainly seem that Canada is placed in a much less favourable position than other English colonies in regard even to the postal intercourse with Great Britain. Lines are maintained by large subsidies to the British possessions in Australia, in South America, in the West Indies, and the Mediterranean, but with respect to Canada, her mails are conveyed

first



first to a foreign country, and then through that foreign country, at a heavy expense, to her own territories.

Having thus adverted to the more general considerations which affect the question, I deem it my duty respectfully to point out to your Grace the consequences which, in my opinion, must follow the failure of the Canadian line. The fact that an enterprise so essentially tending to promote the general interests of an important Colony, and necessary to prevent its trade from being diverted into foreign channels, is crushed by the superior advantages conferred by England on lines whose interests are avowedly and exclusively with a foreign country, cannot but produce deep and general dissatisfaction; and in the absence of more cogent reasons than have yet been assigned for the renewal of the one and the establishment of the other, give rise to an opinion that colonial prosperity has been needlessly sacrificed to promote the interests of private companies. Apart from this, that many millions of English capital are invested in the Grand Trunk, the Great Western, the Northern Railways of Canada, and other private undertakings of a similar character, which undertakings it has been the effort of Canada to make productive by attracting, through the means already adverted to, a direct trade between Europe and the West, and that the future prosperity of these enterprises will be most disastrously affected by the withdrawal of the Canadian weekly steam service, ought not to be without their weight. A return to the former service to New York and Boston, maintained by Imperial subsidy, will continue to make every inhabitant of Canada a direct contributor to the United States revenue. The amount of postage on the Canada mail matter by the Cunard line is, I understand (though I cannot vouch for the exact figure), estimated at from 32,000*l.* to 39,000*l.* a year, of which the United States transit charge is about one-third, or from 11,000*l.* to 13,000*l.* a year; when it is considered that not only need no portion of this amount be paid, that it is a tax on the Canadian people, directly attributable to the continuance of the subsidy to the United States lines, and moreover, that delay in the receipt of the mails to the Canadian community is entailed by the circuitous route so fostered through a foreign country, it will not be surprising if a state of things so anomalous, which the Colony is struggling to the full measure of its resources to remove, will, if continued, produce extreme irritation among its inhabitants, since every mail reminds them of a direct contribution to the American exchequer. I need hardly advert to the obvious fact, that by the subsidies in question a bonus is given to divert the most needy class of emigrants from proceeding to a British colony, where their labour and capital are so much needed, and to encourage their settlement in the United States.

I have thus imperfectly, though, I fear, at somewhat too great length, endeavoured to point out to your Grace the peculiar and exceptional position of the province whose interests I am charged to represent. Its special claims to Imperial consideration, and the injury which the existing state of things will, if continued, inflict upon it, in what form and to what extent a proper measure of relief can be accorded, I leave to the consideration of the Government of which your Grace is a member; I would, however, venture to suggest one or other of the following plans, as being likely to attain the object which we seek to accomplish:

1. A direct subsidy to the Colonial steamers. If it be true, as Mr. Cunard states his belief to be, that the amount of postage received by his ships is equal to the sum paid to him by the British Government, and that the line is kept up without cost to the country, surely the Canada postal communications are sufficiently important to justify an Imperial subsidy, equal, at least, to that which the Colony contributes, even if the important commercial considerations which I have adverted to, were to be disregarded.

2. A payment by Great Britain of a stipulated sum for the conveyance across the Atlantic, and to the western limits of Canada, of the mails to British Columbia, which the province offered to perform in terms of the Minute of Council of the 13th June last, to which I have had the honour of again calling your Grace's attention in a separate communication.

3. If it is found that the arrangements with the Cunard line and the Galway line have gone so far as to be irretaceable, then that some such modification of the service be, if possible, required of one or other of the contractors, as may by means of its joint performance by the Canadian and English contractors, still continue to Canada a direct weekly communication. I am not prepared to say how far this latter suggestion is practicable in detail, but I doubt not the Canadian Government would be prepared to listen favourably to any reasonable proposal that would prevent the important objects the province had in view in the establishment of the line, from being defeated, which they would be should the Canadian line be forced to succumb, as it soon will, under the competition maintained by the two Imperial subsidies.

I beg your Grace will accept as my apology for the length of this communication, that I feel in common with, I believe, all Her Majesty's subjects in Canada, a strong sense of the serious injury to which the interests of the Colony are exposed, and that I entertain a firm assurance that your Grace will not only give an impartial and careful consideration to the facts I have stated, but will be disposed to promote the reasonable claims of this important dependency of the empire.

His Grace the Duke of Newcastle,  
Colonial Secretary.

I have, &c.  
(signed) *John Rose.*

Enclosure No. 2.

STEAMSHIP.	FROM		AT		Gain or Loss of Time to Mails by Canadian Packet, as compared with Mails by previous Cunard Packet.	
	LIVERPOOL.		MONTREAL.		Gain.	Loss.
	1859 :		1859 :			
Africa - - -	16 April - -		30 April - -	4 p.m.	—	—
North Briton - - -	20 " - -		2 May - -	5 p.m.	1 day 23 hours.	—
Niagara - - -	23 " - -		7 " - -	4 p.m.	—	—
Anglo Saxon - - -	27 " - -		9 " - -	8 p.m.	1 day 20 hours.	—
Persia - - -	30 " - -		12 " - -	5 p.m.	—	—
Nova Scotian - - -	4 May - -		17 " - -	6 a.m.	- - - -	13 hours.
Canada - - -	7 " - -		21 " - -	4 p.m.	—	—
North American - - -	11 " - -		23 " - -	4 p.m.	2 days.	—
Asia - - -	14 " - -		27 " - -	10 p.m.	—	—
Hungarian - - -	18 " - -		31 " - -	2 a.m.	20 hours.	—
America - - -	21 " - -		4 June - -	4 p.m.	—	—
Indian - - -	25 " - -		7 " - -	4 p.m.	1 day.	—
Africa - - -	28 " - -		10 " - -	10 p.m.	—	—
North Briton - - -	1 June - -		12 " - -	3 p.m.	2 days 7 hours.	—
Europa - - -	4 " - -		17 " - -	11 a.m.	—	—
Anglo Saxon - - -	8 " - -		19 " - -	4 p.m.	1 day 19 hours.	—
Persia - - -	11 " - -		22 " - -	10 p.m.	—	—
Nova Scotian - - -	15 " - -		28 " - -	9 p.m.	- - - -	1 day 23 hours.
Arabia - - -	18 " - -		1 July - -	12 noon.	—	—
North American - - -	22 " - -		4 " - -	2 p.m.	22 hours.	—
Asia - - -	25 " - -		7 " - -	11 p.m.	—	—
Hungarian - - -	29 " - -		9 " - -	1 p.m.	2 days 10 hours.	—
Canada - - -	2 July - -		15 " - -	11 a.m.	—	—
Indian - - -	6 " - -		18 " - -	5 p.m.	18 hours.	—
Africa - - -	9 " - -		22 " - -	10 a.m.	—	—
North Briton - - -	13 " - -		25 " - -	1 p.m.	21 hours.	—
Europa - - -	16 " - -		29 " - -	10 a.m.	—	—
Anglo Saxon - - -	20 " - -		30 " - -	10 p.m.	2 days 12 hours.	—
Persia - - -	23 " - -		4 August - -	9 a.m.	—	—
Nova Scotian - - -	27 " - -		8 " - -	3 p.m.	- - - -	6 hours.
Arabia - - -	30 " - -		12 " - -	10 a.m.	—	—
North American - - -	3 August - -		14 " - -	6 a.m.	2 days 4 hours.	—
Asia - - -	6 " - -		19 " - -	10 p.m.	—	—
Hungarian - - -	10 " - -		21 " - -	3 p.m.	2 days 7 hours.	—
America - - -	13 " - -		28 " - -	6 p.m.	—	—
Indian - - -	17 " - -		29 " - -	2 p.m.	3 days 4 hours.	—
Africa - - -	20 " - -		2 September 11 p.m.	—	—	—
North Briton - - -	24 " - -		5 " - -	11 p.m.	1 day.	—
Europa - - -	27 " - -		10 " - -	1 p.m.	—	—
Anglo Saxon - - -	31 " - -		13 " - -	3 a.m.	1 day 10 hours.	—
Persia - - -	3 September - -		19 " - -	10 p.m.	—	—
Nova Scotian - - -	7 " - -		22 " - -	2 p.m.	1 day 8 hours.	—
Arabia - - -	10 " - -		23 " - -	3 p.m.	—	—
North American - - -	14 " - -		26 " - -	6 a.m.	1 day 9 hours.	—
Asia - - -	17 " - -		30 " - -	11 p.m.	—	—
Hungarian - - -	21 " - -		2 October - -	3 p.m.	2 days 8 hours.	—
Canada - - -	24 " - -		10 " - -	10 a.m.	—	—
Indian - - -	28 " - -		11 " - -	2 p.m.	2 days 20 hours.	—
Africa - - -	1 October - -		15 " - -	11 p.m.	—	—
North Briton - - -	5 " - -		17 " - -	2 p.m.	2 days 9 hours.	—
Europa - - -	8 " - -		22 " - -	11.30 p.m.	—	—
Anglo Saxon - - -	12 " - -		24 " - -	1.30 p.m.	8 hours.	—
Persia - - -	15 " - -		26 " - -	11 p.m.	—	—
Nova Scotian - - -	19 " - -		30 " - -	3 p.m.	8 hours.	—
America - - -	22 " - -		7 November 10 a.m.	—	—	—
North American - - -	27 " - -		7 " - -	6 p.m.	4 days 16 hours.	—
Asia - - -	29 " - -		15 " - -	10 a.m.	—	—
Hungarian - - -	2 November - -		14 " - -	2.30 p.m.	4 days 19° 30'	—
Africa - - -	12 " - -		28 " - -	7 p.m.	—	—
Bohemian - - -	16 " - -		30 " - -	1.30 p.m.	2 days 5° 30'	—
Europa - - -	19 " - -		30 December 4 p.m.	—	—	—
Anglo Saxon - - -	23 " - -		9 " - -	6 a.m.	- - - -	1 day 14 hours.
Persia - - -	26 " - -		9 " - -	5 p.m.	—	—
Nova Scotian - - -	30 " - -		16 " - -	2 p.m.	- - - -	2 days 21 hours.



STEAMSHIP.	FROM LIVERPOOL.	AT MONTREAL.	Gain or Loss of Time to Mails by Canadian Packet, as compared with Mails by previous Cunard Packet.	
			Gain.	Loss.
	1859:	1859:		
America - - -	3 December -	20 December 1 p.m.	—	—
North American - - -	7 " - -	19 " - 12.30 p.m.	5 days 0° 30'	—
Asia - - -	10 " - -	24 " - 1 a.m.	—	—
North Briton - - -	14 " - -	31 " - 3 p.m. -	- - - -	3 days 14 hours.
		1860:		
Canada - - -	17 " - -	4 January - 3 p.m.	—	—
Bohemian - - -	21 " - -	6 " - 8 p.m. -	1 day 19 hours.	—
Arabia - - -	24 " - -	9 " - 7 p.m.	—	—
Hungarian - - -	28 " - -	15 " - 8 a.m. -	- - - -	1 day 13 hours.
Europa - - -	31 " - -	18 " - 1 p.m.	—	—
Anglo Saxon - - -	4 January 1860	20 " - 12 noon -	2 days 1 hour.	—
	1860:			
Africa - - -	7 January -	24 " - 7 p.m.	—	—
Nova Scotian - - -	11 " - -	29 " - 6 a.m. -	- - - -	11 hours.
America - - -	14 " - -	6 February 12 noon.	—	—
North American - - -	18 " - -	5 " - 6 a.m. -	5 days 6 hours.	—
Asia - - -	21 " - -	7 " - 7 p.m.	—	—
North Briton - - -	25 " - -	9 " - 1 p.m. -	2 days 6 hours.	—
Canada - - -	28 " - -	14 " - 12 noon.	—	—
Bohemian - - -	1 February -	15 " - 12 noon -	3 days.	—
Europa - - -	11 " - -	25 " - 12 noon.	—	—
Anglo Saxon - - -	15 " - -	2 March - 12 noon -	- - - -	2 days.
Africa - - -	18 " - -	6 " - 7 p.m.	—	—
Nova Scotian - - -	22 " - -	14 " - 2 p.m. -	- - - -	3 days 19 hours.
America - - -	25 " - -	15 " - 1 p.m.	—	—
North American - - -	29 " - -	14 " - 2 p.m. -	4 days 23 hours.	—
Asia - - -	3 March -	17 " - 7 p.m.	—	—
North Briton - - -	7 " - -	22 " - 1 p.m. -	- - - -	18 hours.
Canada - - -	10 " - -	27 " - 8 a.m.	—	—
Bohemian - - -	14 " - -	28 " - 4 a.m. -	3 days 4 hours.	—
Arabia - - -	17 " - -	—	—	—

TREASURY Minute, dated 19 June 1860.

ACKNOWLEDGE receipt of the letter from the Postmaster General of Canada, dated the 30th ultimo, and say, that in the present condition of the Galway contract, and until the ability of the contractors to commence and carry on their contract is placed beyond doubt, and an estimate for the service has been voted by Parliament, it would be premature, in the opinion of my Lords, to enter upon the consideration of the questions raised by his letter.

GALWAY PACKET CONTRACT  
TRANSFER.

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COPIES of the Proposed Assignment of the  
GALWAY PACKET CONTRACT to the Government  
of *Canada*, and COMMUNICATION stating the  
Conditions or Modifications on which the Sanc-  
tion of Her Majesty's Government is sought to  
that Transfer.

(*Mr. Dunlop.*)

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*Ordered, by The House of Commons, to be Printed,  
3 August 1860.*

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[illegible]

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